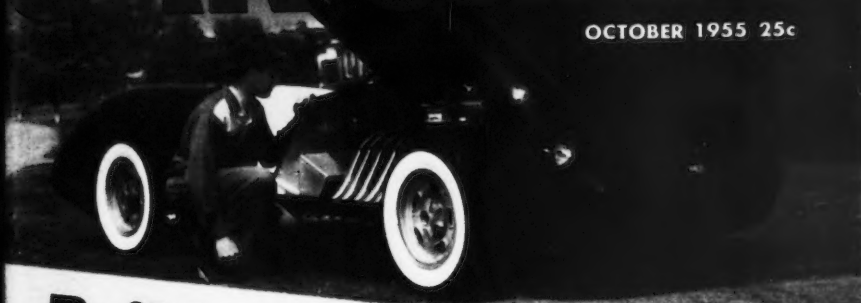
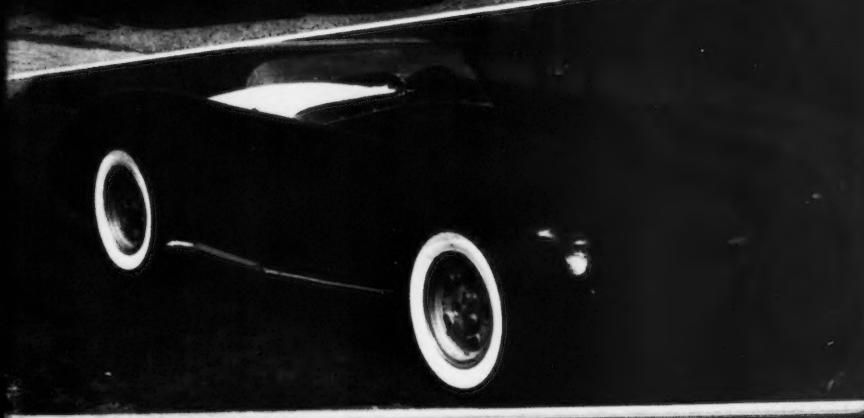
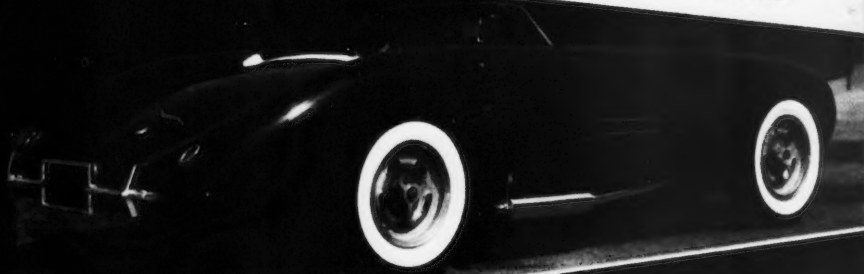


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Boosting Compression for the Street

LET'S KICK around a few pros and cons of compression ratio. Defined, compression ratio is the total ratio at which the fuel/air mixture is compressed within the cylinder of an engine. If an engine has a 9 to 1 compression ratio, this means that the mixture is compressed nine times between the piston positions of bottom center and top center. This action is strictly a mechanical function and compression pressures, as determined by a compression gauge, are no indications of the actual compression ratio.

The compression ratio of any engine plays a very vital part in power and torque output, fuel economy, etc. and the highest useful compression ratio at which a modern engine can be run with given fuel is limited solely by the tendency to detonate. Space will not permit a detailed discussion of the phenomenon of detonation, but basically it is on the order of an explosion that occurs in the combustion chamber *ahead* of the normal flame front. Suffice it to say that any form of detonation, pre-ignition or auto-ignition must be avoided at all costs. These days, the quality of some "super premium" gasolines is such to allow stock engines to be operated efficiently at compression ratios of 9 to 1 and every indication points to ratios of up to 10 to 1 for a couple of '56 cars. This suggests that older cars with lower ratios could be modernized somewhat with very gratifying results. This is true and if compression ratio increases are taken in moderation, the longevity of the engine will not suffer. The additional bearing loads imposed upon the crankshaft and connecting rods by an increase of compression ratio will usually be but a small percentage of the total and anyhow, the great majority of bearing failures are caused by inertia loads and not by compression loads.

There are two facets to compression ratio increases: First, the power and torque will be increased in approximately the same proportion as the compression ratio increase, provided detonation or pre-ignition is not encountered and if the existing spark setting is

(Continued on page 64)

CAR CRAFT

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Published Monthly

No. 6

The Show-How Magazine

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COVER

We picked Dick Lane's fiberglass roadster for this month's cover because this is the issue where we start a series on building your own fiberglass car. Check pages 14-17 and 18-23. Ektachrome by Joe Moore

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Words From The Editor

EVERY MAGAZINE'S editorial staff labors under the thoughts of — *is the magazine doing a good job in its field — are we selecting the right type of material* and last but not least — *are we consistent?* There are many ways that these items can be determined. We can hire in a survey company who specializes in estimating nation-wide reception. The magazine can also turn to their promotion department for a similar program — but to us, the best solution is to ask you straight forward — **WHAT DO YOU THINK?** On page sixty you will find a reader's questionnaire. The questionnaire is compiled of a few short and simple queries on items that we would appreciate knowing. To add a little incentive to filling out the questionnaire, we have made the offer of a dollar saving for those of you who wish to subscribe to CAR CRAFT. This by no means insinuates that those of you who do not wish to subscribe shouldn't fill out the questionnaire — we want to hear from all of you on what you like and what you don't like. By using this type of program to ascertain how CAR CRAFT is progressing, we feel we're getting it straight from the people who buy 'em — **YOU!**

Let's dig into this month's issue and see what we have on tap. First off, we have an exclusive photo story on Universal International's latest shifting-photo titled "The Girl in the Cage." It's an exciting story about modern times, and what makes it more exciting, is that the picture is full of authentic custom cars. About three months ago we re-

ceived a call from the studio asking if we could help them procure some local custom cars for their new picture. We immediately turned the situation over to some of the top custom shops and before long, the location lot where the picture was being made looked as though a large auto show was about to be staged. When you see the picture at your local theater, you won't miss the radical custom cars built by your favorite leading custom shops because they play an important role with the story's plot.

As we mentioned last month, we had a Fiberglass story on its way — well, it's here, and it begins on page 18. The initial part of the story covers the basic ground work of designing and making a full scale model from the drawings. Next month's part II will thoroughly explain how to go about making the female mold.

For you custom hounds, we've really got a couple of goodies to feast over. Valley Custom Shop has knocked out one of the sharpest little '40 Ford coupes that we've seen in a long, long time. You'll find it on page 34. Another custom gimmick that's proving to be a very popular item is — *rear fender skirt airscoops*. Custom shops call this item the "poor man's airscoop," but nevertheless it's a great styling gimmick and you'll find a step-by-step story on page 46 showing you how to go about building them. All in all, we think we have a snappy issue and hope that you agree — if not, then don't forget the questionnaire on page 60.

dick day



hey buddy . . . want to save some dough?

**TURN TO
PAGE 60**





LETTERS

A "QUICKIE"

Dear Sirs:

I think your new series "Body Restyles" is just the thing. I like the idea of listing the prices of each restyling idea. This gives the car owner an idea of what he may have done for a stated amount of loot.

You asked for cars we would like to see customized. There are not very many custom 4-doors, so how 'bout a '52-'53 4-door Ford radically customized.

Keep up the good work. You've got the "only" car magazine.

Very truly yours,
Carl Starkey
Los Angeles, Calif.

Thanks for the rapid answer of approval Carl, the 4-door is coming up. Let's follow suit fans, let us know what you would like to see restyled. — Ed.

HERE — HERE!

Dear Sirs:

I am a constant and faithful reader of your magazine so I figure that this gives me a legitimate opening for a gripe . . . O.K.?

Those of us back in this part of the country who like to have different looking cars think that you put too much emphasis on the custom creations (lead barges) from the west coast. We admit that some of them show fairly good thought, but many are completely off the deep end — ridiculous! You

give us how-to-do-it articles that are real crazy, but do you have a full set of body tools to do your own work? — *we don't*. You could say that we have to depend on what chrome goodies we can buy to dress up and to customize our cars. The chrome goodies are what we like, which apparently you don't, because all of the cars from out there have most of it removed or so-called "frenched in".

My suggestion is this: less step-by-step articles, and more features on how to customize your car with chrome accessories. I've got to surrender on one account though, and that was the Olds taillight lens installation for '52-'54 Fords. I gave my car this treatment and it didn't look bad, but the rest of the customizing stuff you have printed is useless to me and everybody else back here.

Allan Roberts
Albany, New York

We try to show all our readers different approaches that can be taken to make a car look better, Allan. Possibly one that would pertain to your choice would be Ray Moore's car that we featured in the August '55 issue called "Strictly a Showtimer". Here is a car that received the chrome accessory treatment along with minor trim removal. We thought this was a good example of what can be done by merely bolting on chrome goodies. It's a long way from looking like a traveling chrome shop, but check it out — you might like it. — Ed.

HE DOOD IT HIMSELF

Dear Sirs:

I've been a monthly reader of your magazine for several months and I thoroughly enjoy it. It inspired me to start to work on my '51 Ford.

I first removed the chrome from the hood and leaded the holes. This being done without any trouble, I immediately started on the deck lid. I removed the unnecessary ornaments and recessed the license plate.



The next step, and the one I think helped more than anything, was the installation of a different grille. The bars are from a '51 Pontiac and the center is the ornament for a deck lid.

I next installed a set of cutdown Mercury skirts and brought the tailpipes through the bumper guards.

The car is now painted Killarney Green on bottom with a Sandstone White top.



I'm enclosing a couple of snapshots which I would like very much to see in your magazine, because I did all the work myself.

Yours truly,
R. V. Hendricks
Mangum, Okla.

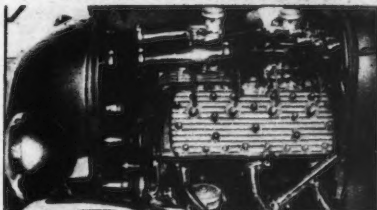
We can't blame you for being proud of your lil' jewel, R. V. Just goes to show 'yuh, it can be done. — Ed.

OCTOBER 1955



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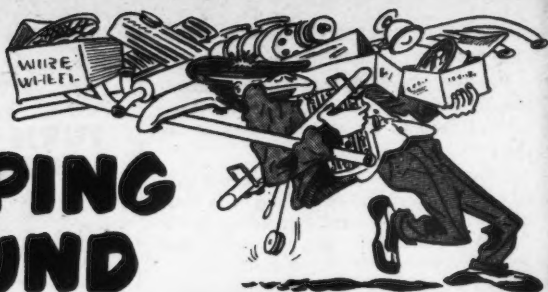
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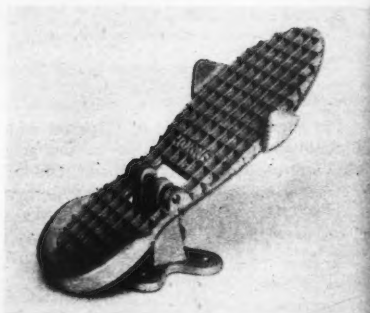
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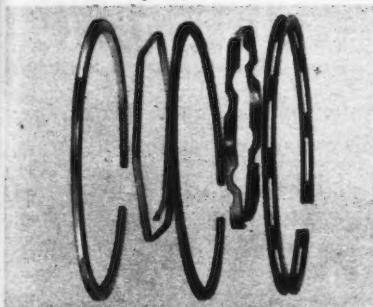
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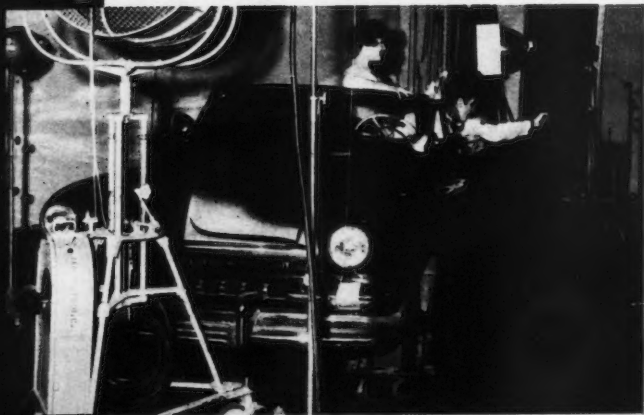
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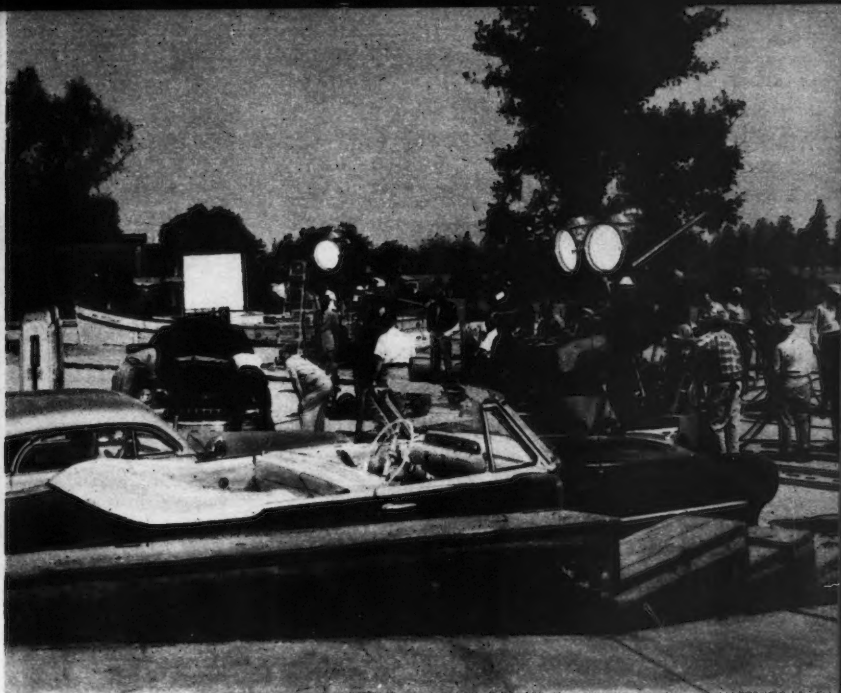
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ROLL 'EM

Universal International's latest film exposes the inner workings of the hot car racket.





Going over a scene in the service station before a take is Keenan Wynn and William Campbell. In a moment the shout of "QUIET" will be heard and the cameras will begin to grind out a scene from Universal International's latest film — "The Girl in the Cage."

CUSTOM cars are getting their first taste of Hollywood's kleig lights, photographer's light meters and the makeup barrage. It all centers around a new Universal International motion picture titled "The Girl in the Cage".

The plot of the picture concerns itself with a young rookie officer of the State Highway Patrol, played by William Campbell, who is assigned the task of masquerading as a 19-year-old tough guy to gain the confidence of some young teenagers mixed up with an ex-convict in a highly successful auto theft ring. It is the hopes of the Highway Patrol to confirm their suspicions that the auto theft ring's overlord is the ex-convict, played by Keenan Wynn, who uses a suburban garage and serv-

ice station as a front for his skullduggery.

The plot grows tense as the young rookie is accepted by the rough teenagers, but is recognized as being a police officer by one of the gang's members, who only a few months before had been given a speeding citation by the young officer. From here on out the picture moves quickly towards the highpowered climax with nothing left to be desired.

You needn't be worried about the automotive phase of the flick, because UI went the route to procure authentic custom cars and teenage equipment. "What's that you say? How did the picture end — don't know, we haven't seen it yet either, see yuh' at the box office!"

Here you see some of the special effects that are used to make picture appear realistic. Wind machine in foreground gives out with breeze for a running car chase.

ROLL 'EM continued



The authentic custom cars made a bit with the whole crew. The location lot looked like a continuous auto show for a solid three weeks. Several top custom cars were used.



Here's the way it will look from the second row in the balcony. Fred Rowe's '49 Merc was used by the young rookie officer to play up to the young teenage gang members.



Being that one of the script's scenes called for a closeup shot through the windshield, the custom cars were ruled out because of radically lowered chopped tops.

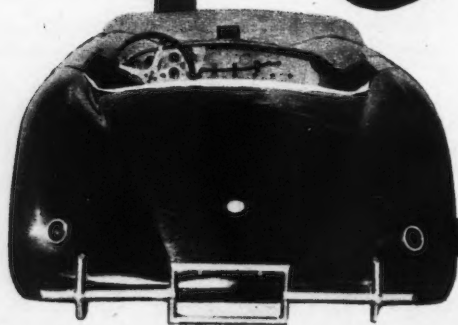


Photos courtesy of Universal
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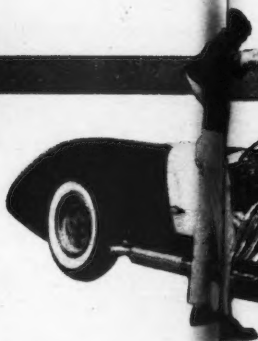
The feminine side of the film is all Mamie Van Doren. Bob Harobata's Barris-built car is used as the villain's car.

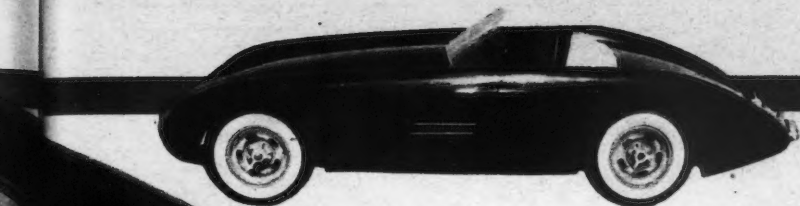


Here, Jan Merlin who plays the villain in film is given a light meter reading before take. It's easy to see why close up shots couldn't be taken through the windshields of customs.



The four pictures of Dick Lane's car on this two page spread cover the fiberglas bodied creation from all angles and show how clean the body lines are. A very handy feature is the hinged forward section which can be raised almost vertically to facilitate quick engine work. Rear bumper and license bracket is formed of tubing. Openings on side of car are designed to pull excess heat from the engine compartment, keep passenger compartment free of fumes.





GMC UNDER GLASS

racing chassis, hot rod
 power plant and modernistic
 styling make up Dick Lane's
 fiberglass sports roadster



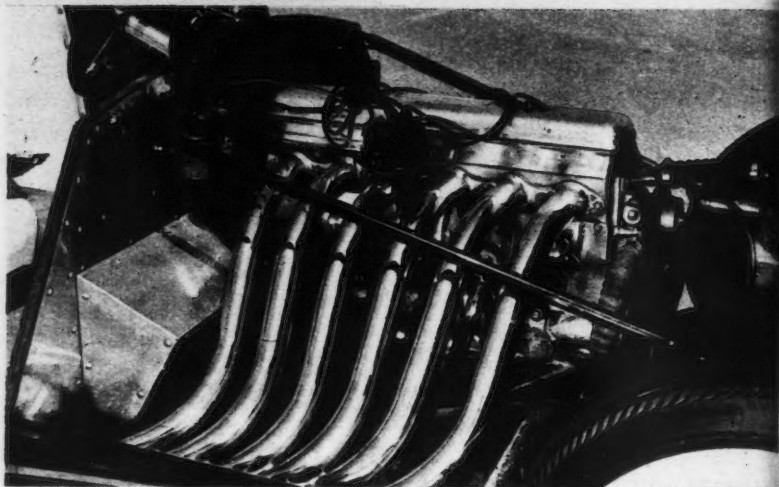
WHEN we gathered together all of the material for the "Building a Fiberglass Car" story which starts on page 18, we decided that it would be a good idea to show just what kind of results could be obtained using a fiberglass body. Since the above mentioned story is a start to finish operation on Bob Sorrell's body, we went to Bob and asked him where we could find a good completed car using his body. Bob sent us over to see Richard Lane of Los Angeles and we had to admit that his car was good — in fact, it was sensational.

Dick used one of Frank Kurtis' 500K tubular frames with full torsion bar suspension. The 500K frame is, except for size, the same basic framework which has been under the winning car for the past three years at In-



Photos by Bob D'Olive

GMC UNDER GLASS continued



dianapolis. In keeping with the Indy theme, Lane used knock-off hubs, magnesium wheels and spot brakes made by Halibrand Engineering for race cars. The torque tube rear end also has a Halibrand quick-change center section with a 3.78 ring and pinion.

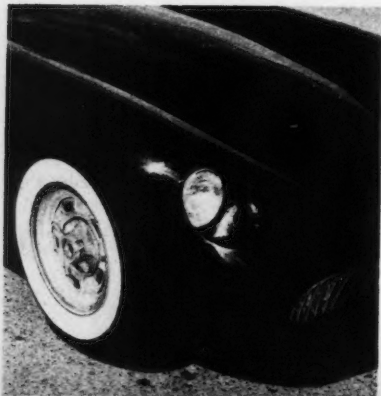
In the engine department, Lane took a 302 cubic inch GMC, bored it $\frac{1}{8}$ inch and left

the four inch stroke stock so that it totaled about 320 cubic inches. A special twelve port Fisher-Horning aluminum head with large valves was bolted on and the compression checked out at 8.5:1. Frank McGurk ground a billet cam and also took care of the piston, tubular push rod and flywheel department. Six Amal carburetors on the left side of the

Individual Amal carburetors on each of the six intake ports make impressive appearance but require ingenuity and neat workmanship to get throttle linkage to operate easily.

With sweeping lines on Sorrell body, headlights had to be recessed into a deep well or behind grille. Lane chose this.

From the back, light well looks like this. Seal beam bracket was laminated into glass cylinder which was laminated to body.





Latch made for sliding patio-type door fits the occasion just right to fasten front body section. Note tubing molded into glass.

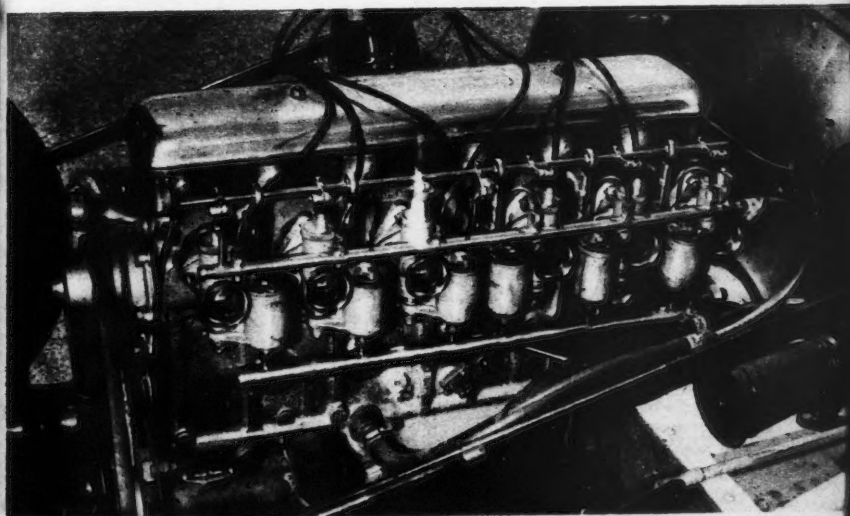


With hood open, the frame extensions which the body pivots on are revealed. Chassis is Kurtis with cross torsion bars.

Much modified 320 inch GMC has aluminum 12 port head by Fisher. Ignition is Spaulding setup with dual coils. Six exhaust pipes are routed into single collector and muffler.

engine and the six chrome headers into a large collector tube on the right side give the engine an unmatched potent appearance. Unfortunately, the engine was never dyno tested so no figures can be given but to quote Lane, "It really scares you when you get on it."

Future plans for this roadster call for competition at some of the Southern California drag strips and also a little closed course competition in sport car events. We bet that this car will also be seen in a lot of automobile shows in the next few years. It's a beauty.





a new
construction
series on

Building a Fiberglass Car

part I — design and full scale model

by Ray Brock

WAY back in the year 1893, the Duryea brothers, Frank and George, invented an automobile which the Smithsonian Institute has recognized as the first marketable American car. Since that time, thousands of Americans have conceived ideas for cars which they were sure would revolutionize the whole automotive industry. Hundreds of these efforts actually reached the production stage and old-timers in the neighborhood can rattle off dozens of names which don't sound familiar to those of us who have appeared within the last thirty years or so.

Assembly lines, volume production and public acceptance have narrowed this vast field down to the present few dozen which now comprise America's production automobiles. This does not imply that the old idea of "build a better mouse trap —" has died off. For example, take a look at all the customs and hot rods which have been built just because somebody wanted to prove that they could build a better mouse trap than the one Detroit put out.

The big point here is that 99% of these cars were originally Detroit creations and the finished customized results can usually still be recognized as having been a certain Detroit car after the work is all finished. If you want

to build a car with a design which is all your own, then go right ahead. Don't worry about the engine and running gear, nobody will ever notice them beneath that beautiful body they are wrapped in. Even though you have used Detroit underpinnings, the car will be recognized as your own creation.

In past years, the back yard designer had a choice of two types of materials to build his body with. First was sheet metal but man, is that stuff hard to work with when the fancy curves start. The second type of body material was aluminum. This metal is very easy to stretch and shape into any kind of contours but only if you happen to be a real aluminum bending expert. The finished product is light but the expense is high.

Soon after World War II, some manufacturers of small boats started to experiment with plastic hulls. A plastic resin was molded with cloth woven of glass fibers for reinforcement and the results were fantastic. About this time, somebody figured out that a car body could be formed of the stuff just as easy as a boat hull. Actually, although this person undoubtedly thought the idea was all his, Henry Ford had experimented with soy bean plastics as early as 1939 for car body panels. The original complete plastic bodied

car as far as we can tell however, was the one designed and built by the Glasspar boat building company for a U.S. Army major in 1951.

This car was previewed in Los Angeles at an automobile show and immediately captured the imagination of a lot of would-be car designers. By this time, plastic reinforced with glass fiber cloth was commonly being referred to as fiberglass. So to eliminate all of the various other names which might confuse you, we will use this one name only to describe the material in molded form—fiberglass.

Fiberglass can be formed into any shape, it is relatively inexpensive, it requires no special tools, it is far lighter in weight than steel, it is very strong and with instruction, anybody can work with it. Lest we make it sound too easy, we hasten to add that experience and study make the difference between an amateur and professional looking finished job. A big help to any beginner is found in Trend Book #112 written by Robert Behme and titled "Manual of Building Plastic Cars." The price is \$.75 and it can be ordered by mail from Trend Inc., 5959 Hollywood Blvd., Los Angeles 28, Calif.

Right here, we are going to leave the fiberglass part of the story for awhile and go into the "Building a Fiberglass Car" story

from the very start which is design. After design, we will cover in this and successive issues such things as drawings, models, full scale wooden mockup, full scale plaster model, making a female mold from the plaster model, preparing the mold for layup, laying up a fiberglass body and so on until the body has been worked into the finished car on the cover and pages 14-17 of this issue.

O.K., now you are all set to start designing your own car but before you pick up that pencil and start making graceful aerodynamic pictures, you'd better find out just what the body is going to cover up. What kind of an engine are you going to use? If it is a big bore V8, then you must figure wheelbase, engine overall dimensions and running gear parts accordingly. If the engine and running gear are going to come from a small foreign car such as an M.G., the overall size will be smaller. Don't forget though that no matter how big the car, you still have to drive it. Better measure how much room you need to stretch your feet out when you are in a driving position. The best idea is to make a scale drawing of the chassis and then sketch in the engine, radiator, yourself and everything else that might have a bearing on the height and length of the car.

Now, how about wheel travel? Regardless of whether the suspension is fully indepen-

illustration by Don Fell

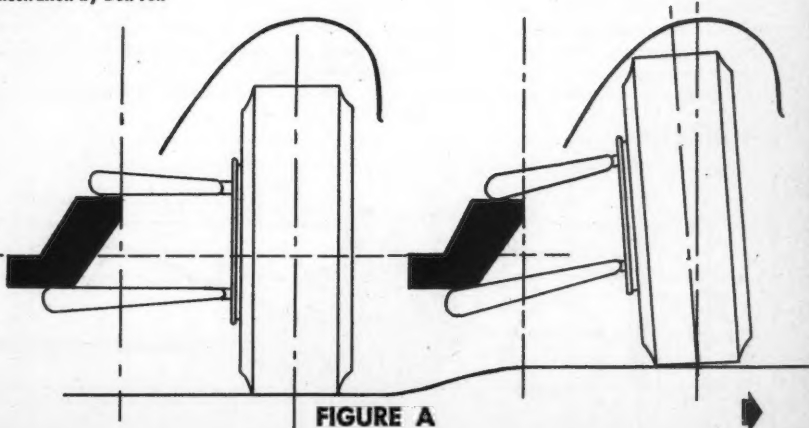


FIGURE A

FIBERGLASS continued

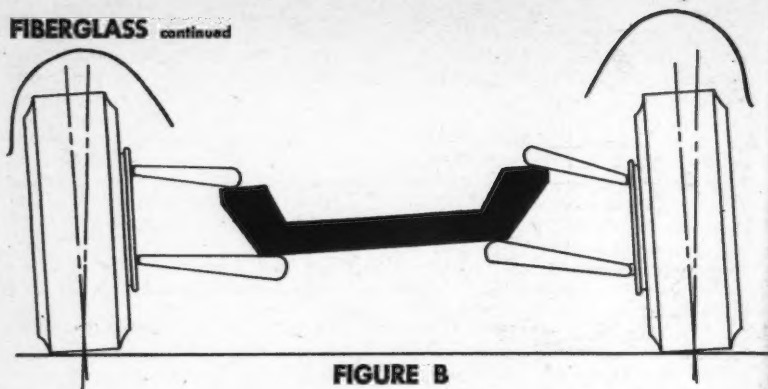


FIGURE B

dent or not, all four wheels are going to do a certain amount of moving up and down. Then too, the front wheels turn so the body will have to be designed to give clearance not only when they are straight ahead but also to clear should the car hit a dip while the wheels are in a cramped position. Figure A shows a typical independent front wheel which are designed to eliminate track change during movement. Notice that the top of the tire leans toward the center of the car when the wheel absorbs a jolt. This must be considered when the inside of the fender or wheel well is designed.

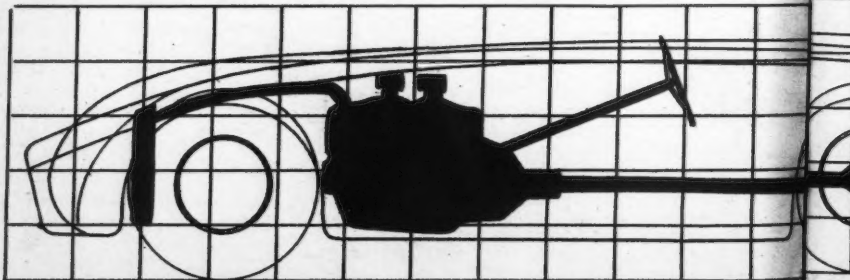
Another little item which must not be overlooked with the independent setup is wheel lean to both the inside and outside of the car. Figure B illustrates how the front wheels lean during severe cornering. With a solid front axle, the wheel movement will not

be as varied as with the independent suspension but you should still figure the limits of wheel travel before drawing in these body sections.

To get to a more realistic example, take a look at figure C. This is taken from the original scale drawings Bob Sorrell and his father used while building the full scale wooden mockup for the Sorrell fiberglass roadster body. Note the scaled sketches of the engine, radiator, drive line and steering column. The body shell has ample clearance and Bob was able to give the body smooth flowing lines because he knew where all major components were located. The complete set of drawings included plans for wheel movement, frame routing, driver and passenger location, body to frame mounts and everything else needed to make an automobile motate.

Figure D is a top view of Sorrell's car. The

FIGURE C



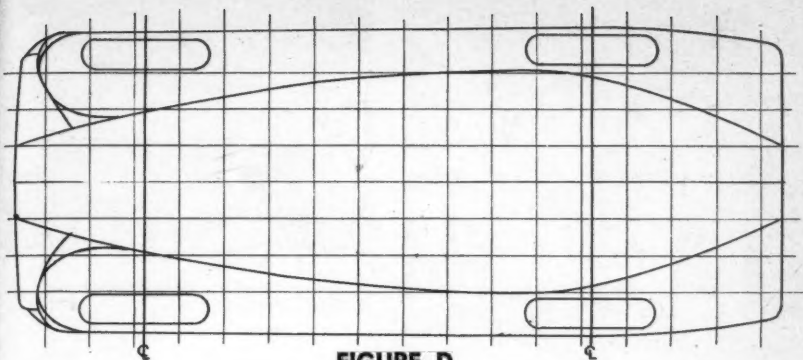


FIGURE D

two symmetrically curved lines down through the length of the car are the definite fender to body lines established by Bob to add a personal air of distinction to his car.

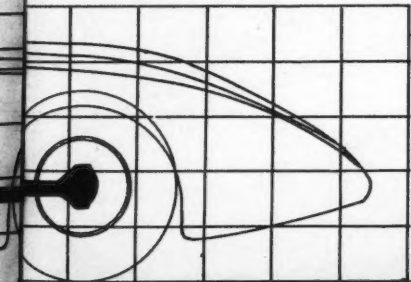
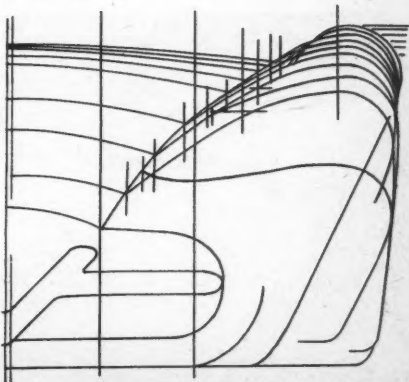
For the wooden templates which were used to form the framework for the full size plaster model, measurements were transferred from the C and D drawings to a half front view (figure E) which gave the template contours every ten inches at full scale. After one-half of the end view had been expanded to full size, it became a simple matter to reverse the curve for the opposite side of the templates.

Another method which is commonly used at this point is a process called lofting. This is fully described in the Trend book and is used to transfer measurements from a scale model of clay or plaster to full scale drawings from where they are then transferred to the wood and cut for templates.

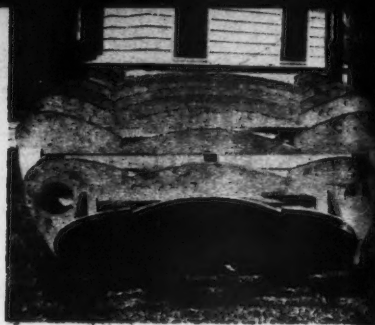
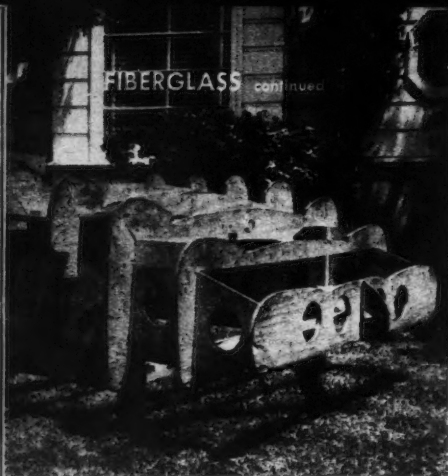
After all of the templates were shaped, they were fastened together in their proper position on ten inch intervals. At this point, it is wise to fasten the wooden framework to a simple chassis or other means of motivation so that the full scale model can be moved around to be worked on and also be rolled from the garage into the sunlight to speed the drying of the plaster of Paris or casting plaster.

With the wooden mockup completely assembled, wire stringers are stretched between the templates about two inches beneath the surface of the body and spaced about every four inches. When these are complete, strips of waterproof paper are used to cover the wire so that a good backing will

FIGURE E



FIBERGLASS continued



Full scale wooden mockup was made by cutting templates, assembling to frame.

Tail view of Sorrell's mockup shows how templates are fastened every ten inches.

be provided for the plaster. Before the plaster is applied, chicken wire or burlap should then be wrapped over the paper to provide strength to the plaster and hold it together.

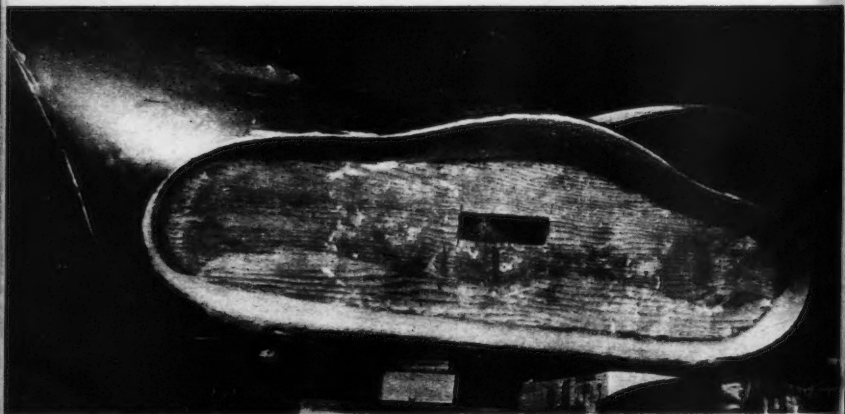
The entire space between the templates or stations as they are also called may be filled with plaster and then smoothed by hand or machine sanding. Some car builders have found it easier to smooth the body if the plaster is stopped just beneath the top of the templates and the remaining space filled with water-filling clay. Clay is easier to work with

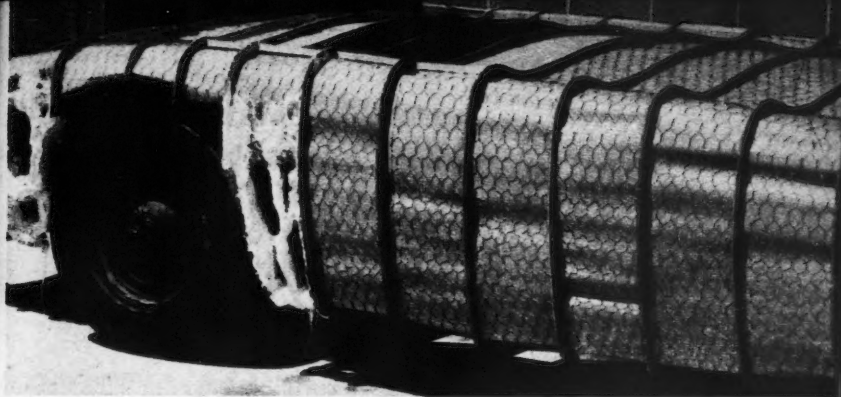
then hard plaster although somewhat more expensive.

After the male mold is completely formed and contoured using the wooden templates as guide points, the mold should next be thoroughly dried. After it is dried, the next step is to sand down the male mold until it takes on the appearance of a finished automobile and meets with your satisfaction.

Next, a coat of shellac should be sprayed on to seal the clay or plaster and the mold can then be sprayed with heavy body primer

After the plaster full size mold was finished off smooth and primed, hard to manage areas such as the sharp grille opening were formed using easier to work with clay.





After all templates had been arranged in their proper order on ten inch centers, the spaces between were filled with wire supports, heavy paper, chicken wire, then plaster.

to fill any minor imperfections. Hand sanding is used to bring the male mold to final shape and this part of the job is complete. Just remember, any flaws in your full scale male mold will show up in the female mold and then be transferred to the fiberglass body. It is easier to erase flaws in plaster or clay then to do it later on with the fiberglass body.

Got the idea now? Next month we'll show you how to make a female mold of fiberglass in several sections so that they are easy to work with.



Light weight spring steel is easy to bend and fit contours when smoothing plaster.

Small template cut from light sheet metal is necessary for uniform curves in plaster.



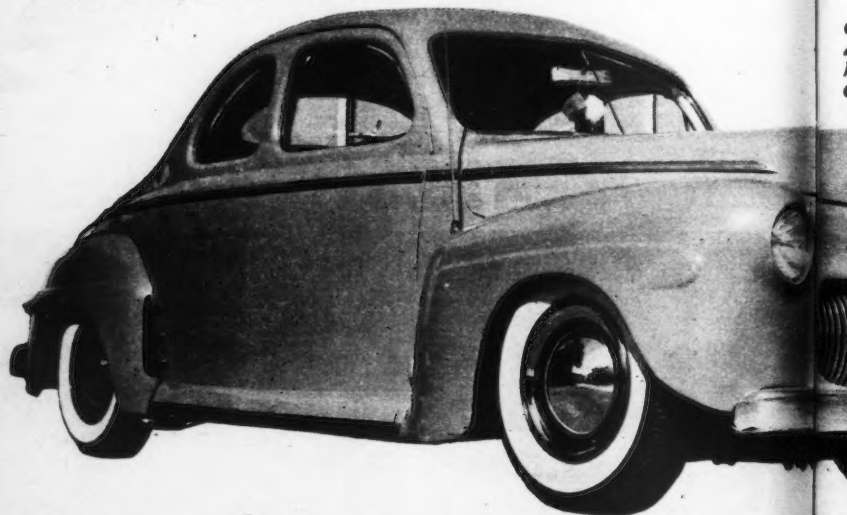
When mold is complete, heavy coats of body primer are used to fill small defects



AN OL' HORSE



Stock taillights have been replaced with lights from a '48 Ford. Note unique styling of deep tunnel. Bumper is also '48 with '54 Stude license plate bracket molded on.



Fender seams have been filled. Headlights have been frenched into fenders by making up special sheet metal rims. Hubcaps are full moon type found in accessory stores.

E WITH NEW TRICKS

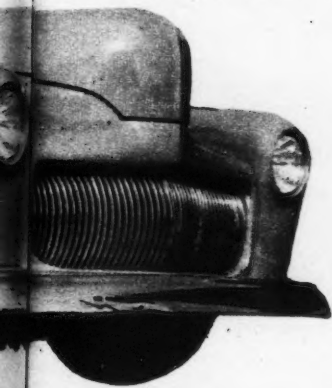
*after building a total of SEVEN hot rods and custom cars —
how can a guy say NO?*

We are going to divulge a little secret that has never been brought out before in a CAR CRAFT editorial. Some of you readers will be familiar with this situation because your correspondence bears this out. There are many young automotive enthusiasts scattered throughout the country anxiously awaiting the day when they turn old enough to join the ranks of the hot rod and custom car hobbiests. They dream of what they will do to

their first real car — they've got it all planned and probably have filed away every torn and faded issue of every automotive magazine published.

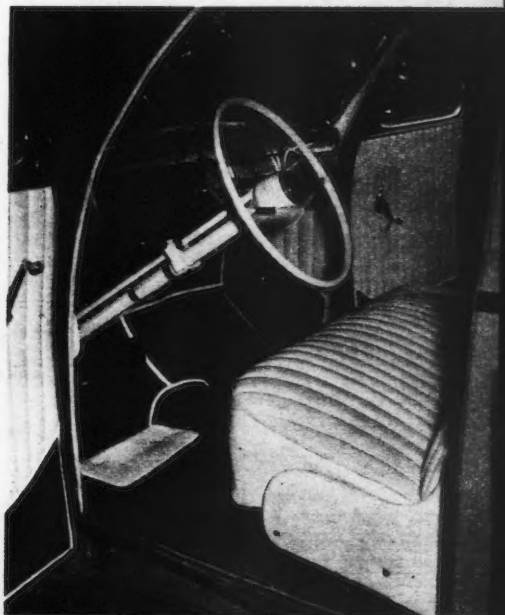
One of these young fans that has come up through the ranks like a veteran is Doug Adamson, who resides in Ventura, California. Nine years ago Doug was going through this planning period of what he intended to do to his first car. Eight years is a long time, and

Color combo of interior is white and orange. Seats, door panels and kick panels are genuine leather. Gutchel Upholstery Shop did work.



Photos by Walt Dibblee

OCTOBER 1955



XU



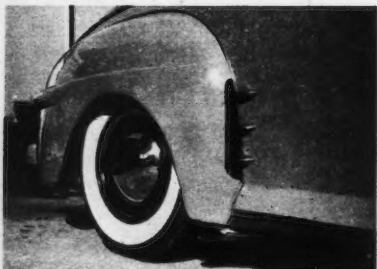
AN OL' HORSE WITH NEW TRICKS continued

no one knows this better than Doug, for since that time he has gone the route with no less than seven cars — *all Fords*. They consist of: three '32 coupes, one '36 coupe, one '39 convertible tub and two '40 coupes. The number seven is a '42 business coupe found on the following four pages.

He purchased the business coupe strictly for a transportation work car. It wasn't long though 'til the ol' customizing bug started pressuring Doug. "It just didn't add up," he exclaimed. "After charging around in customs and hot rods for the last eight years, here I was driving a stocker. In my spare time I started making a few restyling sketches of the grille, taillights and aircoops. Before I knew it, Sam Foose, of Mal's Body Shop, was making like Farina himself — filling this and grinding that 'til the little job was done. In the beginning I told myself that I'd had it, I wouldn't build another car. But I did — and I'm anything but sorry."

We've got to go along with Doug's sentiments. The quickest way to find yourself swatting at flies around a rocking chair is to give up what interests you the most — and what can be more interesting than cars!

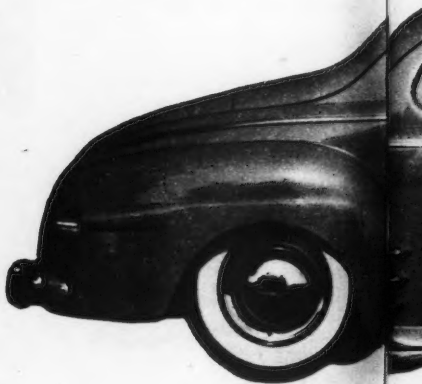
Stock grille's center section was removed and replaced with forty-two separate grille bars. The stock grille frame has been molded to the front fender panels.



Rear fender highlights are the clever air-scoops. Chrome teeth trim are from rear fender of '54 Merc. Note exhaust tip.

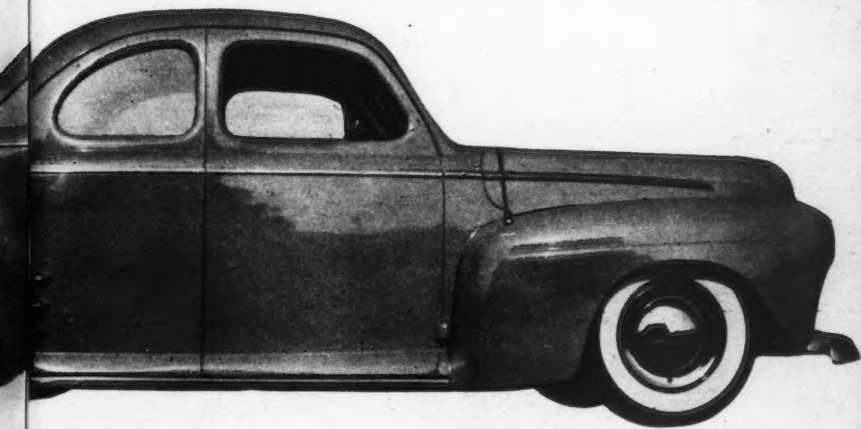


The windshield's stock center frame bar has been removed. The windshield is V-cut and jointed together sealed with plastic.





Door handles and deck trim have been removed. Doors are operated electrically while deck is actuated with cable. All body seams such as fenders, etc., have chrome welt strip.



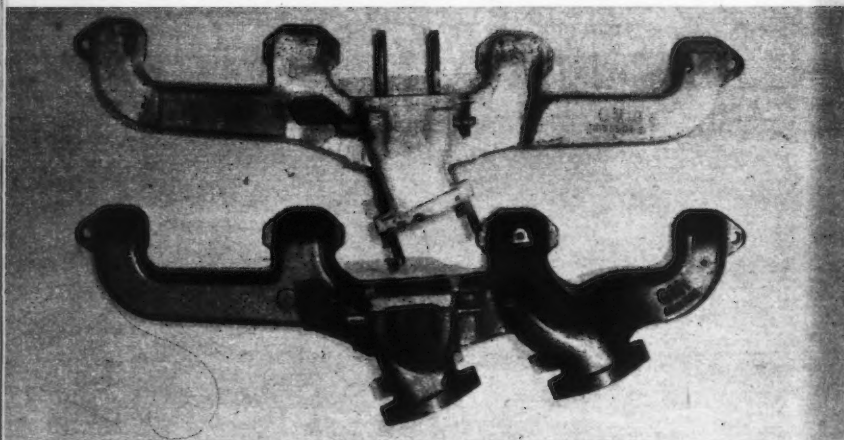
Car's lowness is due to a 6-inch channel of the body over the frame. The rear section of the frame has been Z'd. Springs have been shortened 3-inches with spring eyes reversed.



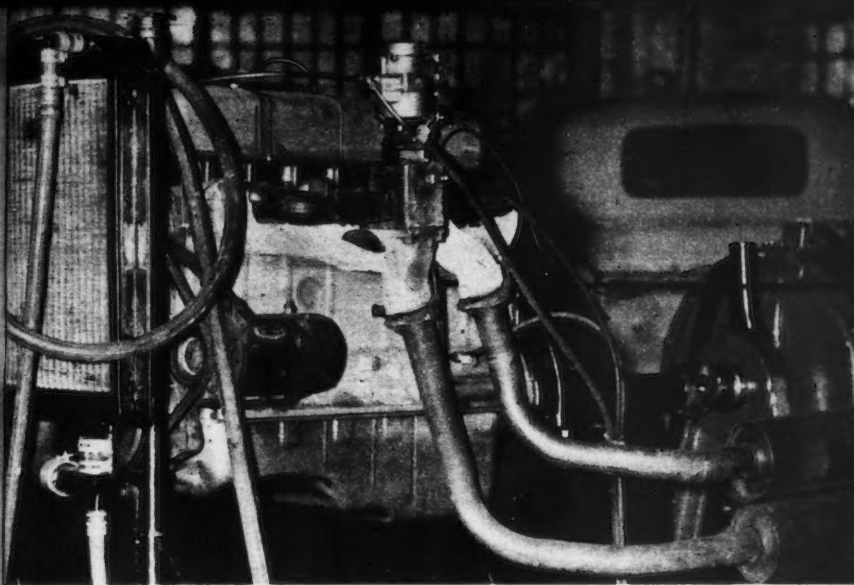
CORVETTE EXHAUST SYSTEM

factory made manifold increases efficiency for late model six cylinder Chevrolets...

by Ray Brock



Comparison between the Corvette dual exhaust manifold and a stock 235 or 261 Chevrolet manifold shows where extra flange has been added. Heat riser is also in new casting.

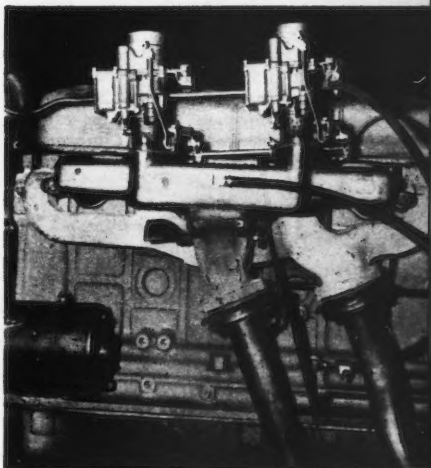


261 cubic inch Chevrolet on dyno was tested completely stock first and then with the Corvette dual exhaust manifold and mufflers. Second test revealed substantial power gain.

DURING the past half-dozen years, most of the cars running around on our highways have really been taking vitamins in the engine department. The majority of these cars have made complete engine design changes during this period so that means that a lot of the earlier stuff still going strong cannot take advantage of some of the horsepower producing accessories being made for these later model engines.

We ran across a real hot item for Chevy six owners the other day though which can be bought at the parts department of your local Chevrolet dealer. Chances are that agencies in smaller towns won't carry these in stock but they can order them for you. The item which we are referring to is a dual exhaust manifold made for six cylinder Chevrolet Corvettes.

The Corvette manifold will fit all 235 and 261 cubic inch Chevy engines which means that it fits all six cylinder models put out in '54 and '55 as well as Powerglide models previous to these years, since they used 235 engines. The 261 engine is standard for all late pickup trucks as well as some other truck models.



Corvette manifold also matches up with heat riser flange on a McGurk dual intake manifold. Long warmups sometimes common with extra carburetion is eliminated.

CORVETTE EXHAUST continued

Exhaust passages in these manifolds are very large and should make excellent headers for competition engines. A definite advantage over some Chevrolet headers is the fact that the intake manifold heat riser is still incorporated which comes in real handy during cold weather. The manifold completely splits the exhaust system with numbers one, two and three cylinders feeding into the front outlet and the last three into the rear outlet.

Just to see how everything would work out, we picked up a Corvette manifold from our local Chevrolet agency, got a '53 Chevrolet sport coupe with Powerglide for a test car and then headed out the freeway to Sonny's Muffler Shop in Monterey Park, California, to get the job done.

The first part of the job was to remove the intake and exhaust manifold assembly from the car, loosen the cap screws and nuts that hold the two together and then separate the manifolds. Next, the Corvette setup was used to replace the old exhaust manifold and they were ready to stuff back on the car.

The stock head pipe slipped right into the front flange on the Corvette manifold and it was a simple matter to make one up to fit the rear flange. The head pipes were routed beneath the crossmember and then into a pair of Sonny's Glasspack mufflers. Since the Corvette manifold is completely split and there is no equalizing hole between the two sections, it was decided to use 30 inch mufflers instead of the conventional 22 or 26 inch. Six cylinder engines with dual straight through mufflers have a habit of being fairly noisy if extra length mufflers are not used with isolated split manifolds and headers.

The rest of the job was a standard dual installation with all brackets completely insulated with rubber between frame and exhaust system. After everything was complete, we fired up the engine and checked the results. There was no unpleasant noise, the installation looked like a Detroit job with the Corvette manifold and we were sure that the engine had an exhaust system free of back pressure. Amazing how you can pick up horsepower across the counter at your Chevrolet dealer's parts department.



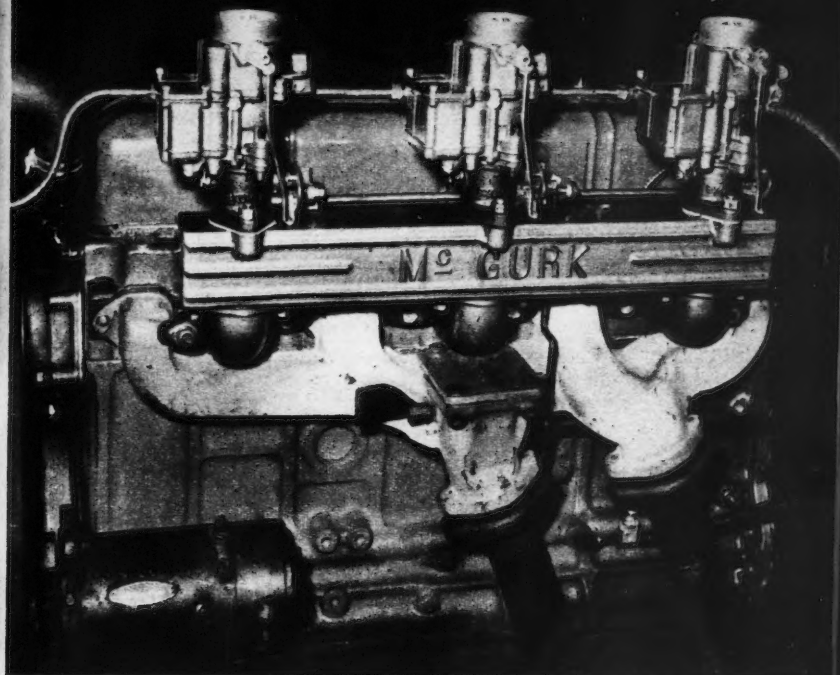
Rear shock absorbers must be taken loose at bottom so tailpipe can be installed.



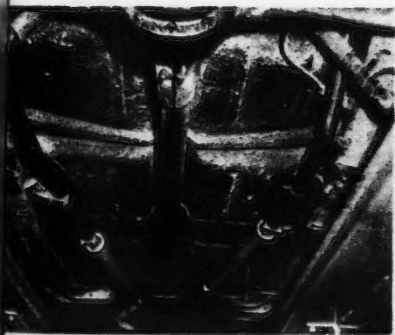
With shock loose and car weight taken off springs, tailpipe easily slips into place.

Brackets between exhaust system and frame are rubber mounted to stop vibration.

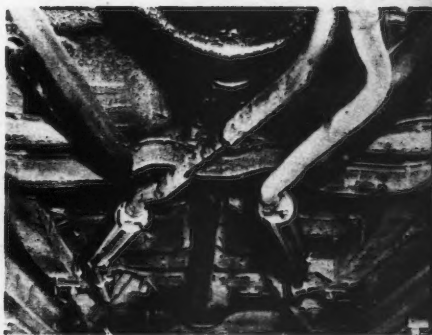




Even for all-out competition engine, Corvette manifold can be used since it is equally as efficient as most headers. Heat riser flange can be easily blocked off with 1/4-inch plate.



Routing of dual pipes from mufflers back. Pipes are clamped to muffler, not welded.



Exhaust head pipes from Corvette manifold pass under crossmember to mufflers.

prexy of San Fernando Valley's
"ROAD-AGENTS" plays the part
with this beautiful Chevy custom

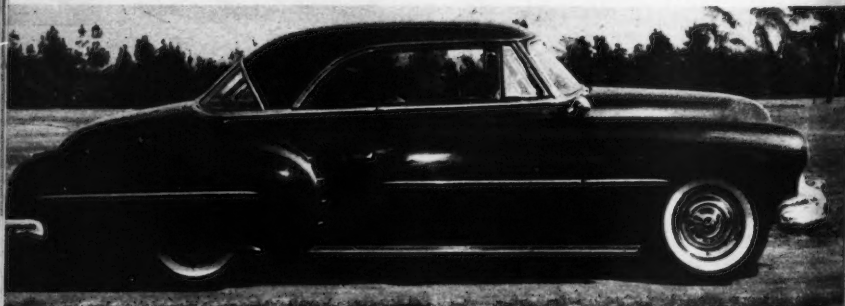
BEL AIR



The grille and bumper are from a '50 Olds 88. Headlights were frenched by using the stock headlight rims. Stock windshield has been replaced with one-piece Olds glass.

The exhaust tips are routed out through Kaiser bumper guard. The regular bumper was discarded and replaced with a '53 Dodge bumper for a full appearance.

Chevy has been lowered a full 6-ins. Rear frame is Z'd with 2-ins. lowering blocks installed. The front suspension system has Valley Custom's lowering kit adapted.



Photos by Eric Rickman

BEAUTY

It's not very often we run across a car enthusiast that is so hung up with the automotive sport that he doesn't know just what phase to concentrate on. John Dietrich of Tarzana, California, happens to be our first. It could be said that he has a very serious problem. When he swings open the garage door every morning it's really a struggle for the guy to make up his mind on just what car to take for the day's transportation. You see, John is so wrapped up in this hot rod and custom car hobby, that he has built two of the most sanitary cars that you could possibly find. One is the immaculate '51 Bel Air Chevy found on these two pages, and the other is a clean little '40 Ford coupe with a full house Cad powerplant that you will have a chance to see in a future issue.

Dietrich's enthusiastic years go back to four years ago when he was the proud owner of a sharp little model A. He says that his initial interest derived from his father, who has always been an ardent sports car fan. With this background it was only a question of time, money and years 'til John was ready to break into the late model car route.

Once he had purchased the Bel Air, it was only a short time 'til Valley Custom Shop, located in Burbank, California, was grinding away on it with new styling ideas in mind. Within a few short months the car rolled from the shop in dark prime a *new breed*. From here it went straight to Carson's Top Shop for the full treatment of a rolled and pleated interior of green metallic and white Naugahide. All that was needed for the finishing touch was an elaborate paint job. This it received with an extra special mix of bronze-cinnamon colored lacquer.

John has to admit that choosing between the two cars is rough, but to relieve some of the hassle he has a simple rule that he follows.

If it's *GO* he wants, then the small '40 is right there waiting. If it's *SHOW* that fits the mood, then the custom Chevy is a sure point getter!

Scoops have been incorporated into rear fenders. Chrome trim protruding from scoops are '53 Merc. Door handles are removed with doors operated electrically.



Rear fenders took on approximately a 4-inch extension with the large '53 Lincoln lenses. Gravel pans and body seams are all molded. Bumper bolt holes are filled.





Neil Emory



Clay Jensen



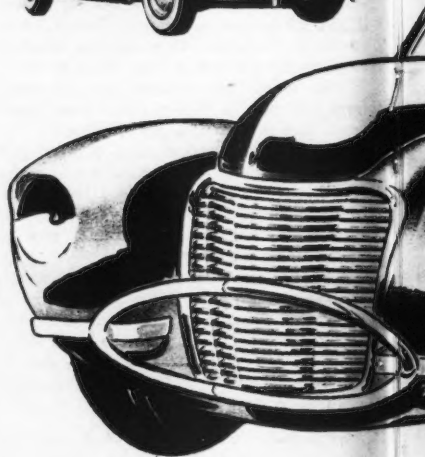
Tad Hirai

THE name Valley Custom needs no introduction. There isn't a car fan going that doesn't immediately connect this three-man custom body shop with such great cars as: Ron Dunn's '49 sectioned Ford coupe, Jack Stewart's "Polynesian," Dick Flint's fire-red street roadster and, above all, the So-Cal Streamliner. Valley Custom Shop dates back to 1948, when Neil Emory and brother-in-law partner Clay Jensen rolled open the doors for business. This was Neil's lifetime ambition and some fifteen years had gone into past experience as a body man. He toured trade school in younger years, then did a stint with Uncle Sam during World War II, working at his chosen profession. After the war came employment with a custom shop and finally, in '48, the big move. Clay, on the other hand, was a novice at fender bending, but in a very short time he was turning out a hammer-weld like an old pro. The shop's past record can probably be measured best by the many awards that the Valley-built cars have won, especially two recent examples. In last year's International Motor Revue and Motorama show, six cars were entered. Out of the six entries, five cars took home first and second award trophies. In local one day shows, twenty-five entries were made and the cars brought home a total of twenty-two awards — this is an average? The versatility of the shop is easily estimated by the cleverly restyled '40 Ford found on the opposite page. Neil, Clay and Tad invite any questions on customizing and if you're ever in the neighborhood of 1871 Victory Place, Burbank, California, drop in. You'll find the trio a great bunch of guys.

THERE are two models of the Ford product that from all recent reports are setting an all time high for popularity with the younger set. One is the '49-'51 club coupe, which we featured in our first restyling article (August '55 CAR CRAFT) and the other is the sharp lines of the '40 coupe.

When Valley Custom Shop was handed the assignment of customizing this model, you could practically hear the restyling cogs pick up rpm's. The basic lines of the coupe offer unlimited possibilities, but this is fairly obvious by comparing the stock photographs of the car against the illustrations.

Valley Custom Shop



The initial restyling step was a big one—a four inch section removed from the body. The top received a similar treatment, a three inch chop and removal of the center window post giving it the hardtop appearance. Since the running boards were discarded, an extra roll was added to the lower edge of the body between the fenders. The fender openings were radiused with the front and rear aprons rolled into lower sections of the body. The front section of the front fenders have been "bobbed," and carried under the grille. The headlights are very simple in design yet very effective. The lower stock contour of the head-

light frame has been duplicated in the special shade above. Grille is constructed of round rod, and carries a slight resemblance of stocker. The hood modification appears to be the most mysterious, but actually is very basic. When sectioning the body, the hood's side panel, between the two stock styling creases, was relieved of four inches of material. This flattened the hood appearance considerably, especially the high stock nose. The lower side flares are what you see formed into the top of the front fenders and body. Possibly the other deceiving factor of the hood is that the forward corners have been rounded

RESTYLES

the '40 Ford Coupe

It could be said that Valley Custom cut the small '40 Ford coupe down to size. The body is sectioned 4-ins., top chopped 3-ins.

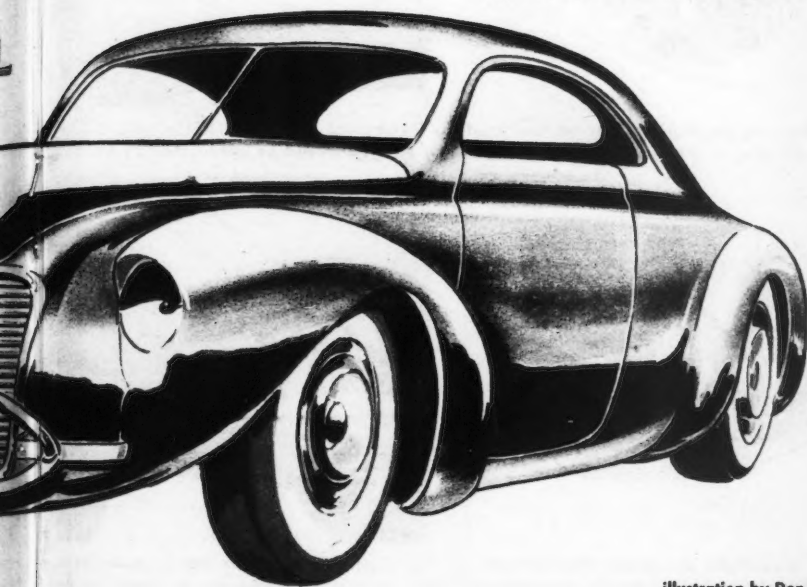


illustration by Don Fell

RESTYLE continued

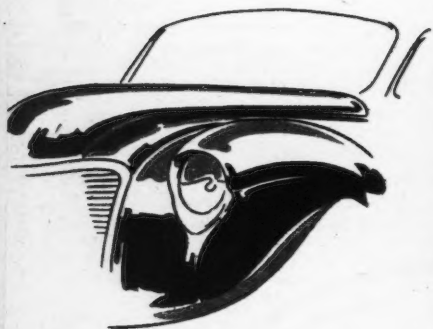
matching the contour of the grille's top bar. The hood carries a slight peak and all trim has been removed.

For additional lowering, the shop Z'd the rear frame and installed a dropped axle up front. The front nerf bumper bar is made from tubing and is mounted directly to the reworked stock bumper brackets. All the stock trim has been removed, such as door handles and deck lid ornament. The doors are operated electrically while the deck lid is opened by a pull cable from inside the car.

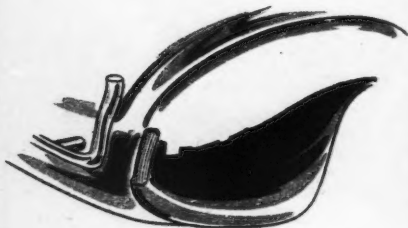
The rear end treatment consists of slender

frenched taillight lenses made up from plexiglass with plastic checker-board reflector mounted to the back side of the lens. The rear nerf bar is made from tubing as that of the front, and is attached solidly to the rear bumper brackets. All the rear body panels and rear fender aprons are molded together to form a solid roll.

The completed '40 displays some of the great styling work that custom shops are capable of turning out. This particular breed is one that I know we'd all give our eye teeth to own.



The novel headlight treatment consists of the lower stock chrome headlight frame being duplicated in the special shade above. Cost of this job would be approximately \$80.00.



The taillights are neatly frenched into the rear fenders. The lenses can be made from plexiglass with plastic checker-board backings, or a slender lens can be found to fit.





Rear end styling carries the same rounded contour motif as that of the front. Tubing nerf bar is solidly attached to the stock bumper brackets. Rear window is '41 Ford.

PARTS AND PRICE LIST

	LABOR	PARTS
Section body	\$750.00	—
Chop top and remove center post	750.00	—
Roll front and rear fenders.		
Taper and roll aprons	150.00	—
Rework cowl	150.00	—
Build grille from tubing and chrome	200.00	—
French headlights	110.00	—
French taillights	65.00	—
Add sheet metal section under doors and roll	150.00	—
Nose and Peak hood. Radius front corners	90.00	—
Remove deck trim and fill	30.00	—
Remove and mold door handles.	75.00	\$19.95
Install rear window ('41 Ford)	75.00	10.00
Build front and rear nerfing bars and chrome	175.00	—
Z rear frame	200.00	—
Install dropped front axle (Parts included)	60.00	—
Paint (one color) lacquer	175.00	—
	<u>\$3205.00</u>	<u>\$29.95</u>
	29.95	—
	<u>\$3234.95</u>	

NEXT MONTH

Barris Brothers

Custom Shop

RESTYLES THE '55 FORD

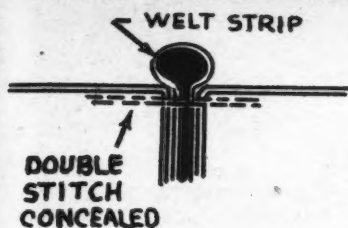


BACK FOR the second round of our upholstery series this month is a step-by-step procedure for making your own two-tone seat covers. After last month's initial installment on door panels, we assume that the needle and twine is still lukewarm and you're ready for additional progress. You'll find that the seats require considerable more cutting and layout work, as compared to the panels, but basically the jobs are very similar. As we mentioned last month, the interior that is being used for this series is of GM origin. Those of you who are working on products under the Ford banner or other makes, will find a slight difference in the construction of the seat's rear paneling and the frame. Possibly the best method to employ when making your seat covers is to observe and remember the various patterns and sections of the old upholstery as you remove it. If you become confused, many times you can revert back to the old upholstery and find the answer. On the opposite page you will find simple stitching diagrams that will assist you in sewing up

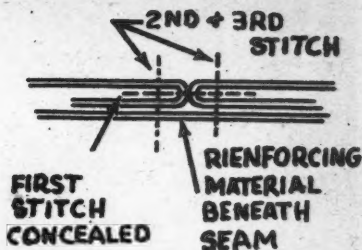
various sections of the seat covers. *Diagram A* is a hidden stitch used when sewing two-tone color sections together with a welt strip and for trimming edges. The welt strip can be seen sandwiched between the two pieces of material. *Diagram B* is the stitch that is used for sewing the darker sections of material together which are sewn diagonally, over and down the corners of the seats. At the center of the seats, around the division hole, you will have to sew an extra piece of material on to the top sections enabling you to pull the seat material down through the hole, securing it to the underneath side of the seat. By checking out your old seat covers, you will see exactly how this is done. If you have no facilities for sewing, such as a heavy duty or power sewing machine, then cut out all the necessary pieces and confront your local upholstery shop, more than likely they will accommodate you for little cost.

We wish to thank Scott's Top Shop, San Diego, California, for the following illustrative photographs.

TOP SIDE OF MATERIAL



TOP SIDE OF MATERIAL



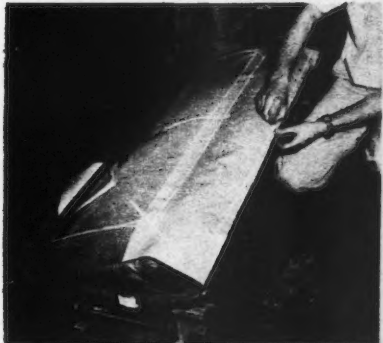
This stitch is used for sewing various sections together when employing welt strip.

This stitch is used for sewing sections together diagonally at the corners of seat.



1. After removing seat, the first step is to determine and mark off center of seat.

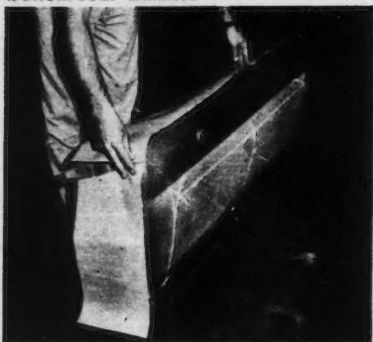
2. To insure having rounded corners uniform, a small cardboard disc is employed.



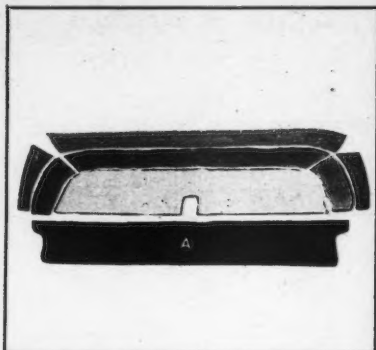
3. Here is the seat assembled showing how the design is first chalked off perfectly.

4. Lay material over seat and trace off pattern. Allow 1/2-inch excess for seam.

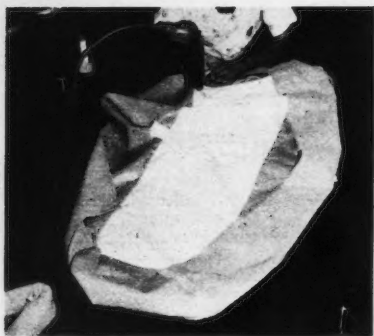
bottom seat continued



5. All sections are marked off with chalk in the same manner, top, sides and centers.



6. Piece A is sewn to top panels with a loop for tie-down wire (see step #10-12).



7. All sections are now sewn together. Refer to lead-in copy for stitching methods.



8. Remove old covering from seat. Fill cracks and seams with airfoam rubber.



9. A healthy layer of cotton wadding is now cut to size and placed over top of seat.



10. A piece of wire is now placed through the tie-down loop on the rear seat flap.



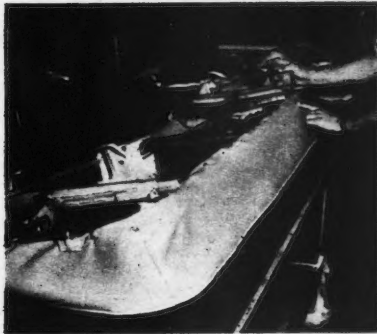
11. The new seat cover is now pulled and stretch over the seat and cotton wadding.



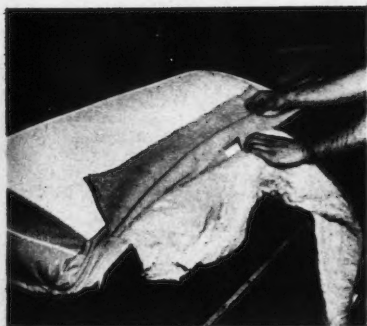
12. Tie-down wire in rear flap is now secured to inner seat springs with hog rings.



13. Extra cotton wadding is slipped up under seat cover at corner for filler.



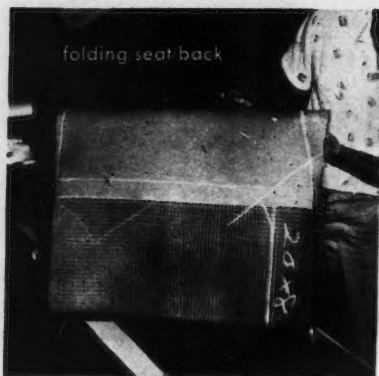
14. Start working seat cover tight at front edge, securing it with hog rings as you go.



15. With front and sides secured, extra wadding is now placed over the rear frame.



16. With frame padded, pull flap tight and secure. Also secure the center hole.



folding seat back

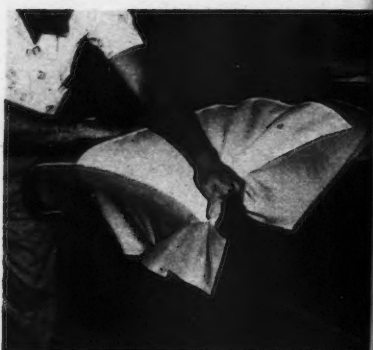


1. Chalk off pattern on seat, then cut two-tone sections as before with lower seat.

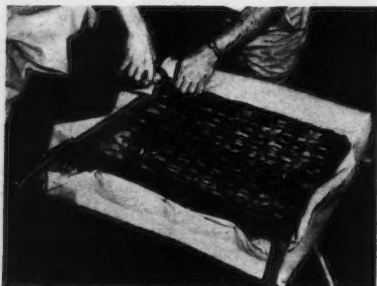
2. Here are required sections. Always allow $\frac{1}{2}$ -in. excess material for seaming.



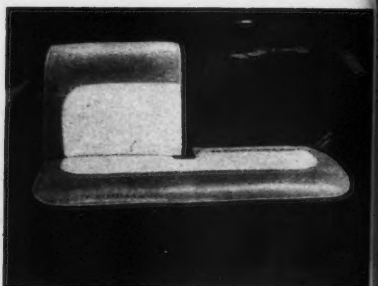
3. Sew sections together. Remove old cover, install wadding and new slip cover.



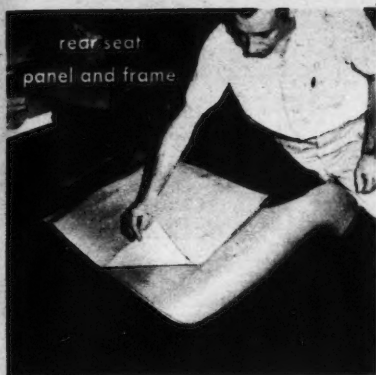
4. Pull cover tightly towards the bottom of the seat and secure it with hog rings.



5. With bottom secured, now go to top of seat and stretch it tight and secure it.



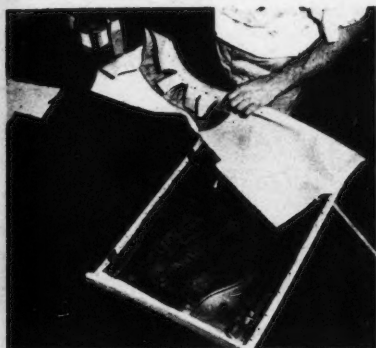
6. The final step before covering the rear panel is to match up the two-tone design.



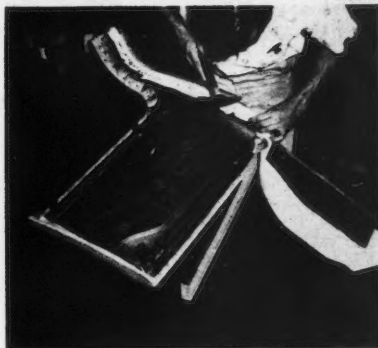
1. First cut a piece of material for the rear panel, then one for the seat frame.



2. Sew pieces together. Secure material to panel with tacks. (See step #3.)



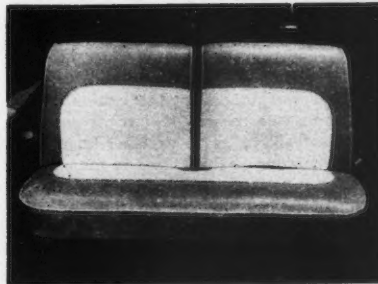
3. With material tacked to panel, now start covering frame. V-cut for radius.



4. All inner facing trim strips can be covered with contrasting colored material.



5. With seat's rear panel and frame completed, reinstall panel to back of seat.



6. Here are seats completed. Note that the horseshoe design patterns match perfectly.

HOT IRON for JUNIOR



Viking Craft's latest — a scaled down midget race car

IT WON'T be long now before the cold weather sets in so it's about time some of you started thinking of projects to keep you busy in the garage on the nights when the wintry winds blow. The thing that reminded us of the coming winter was that we stopped by to see the kids run at Anaheim's Jelly Bean Bowl in their $\frac{1}{4}$ -roadsters (see Car Craft, March and April '55) a couple of weeks ago and saw a new type car.

Doug Caruthers of Viking Craft gave us the rundown on this new car which has been dubbed the $\frac{1}{4}$ midget. Doug said that Viking was tooling up in anticipation of the winter rush on the new midget car kits. We expressed doubt as to whether many cars would run during this period of the year but Doug explained himself. Seems as though a lot of fathers buy kits for their offspring

as Christmas presents. Others buy them to work on as winter projects and still others combine the two reasons. After Junior has been tucked into bed for the night, the old man sneaks out, unlocks the garage and turns racing mechanic. On Christmas morning, the finished car is discovered beneath the tree and you can bet that Junior won't discover the rest of the presents for a long time.

If the Junior in your family happens to be of the female variety, don't let that stop you because the last time we were out at the Jelly Bean race track, one of the girls shut down all of the old timers to pick up the checkered flag and a cup in the semi-main.

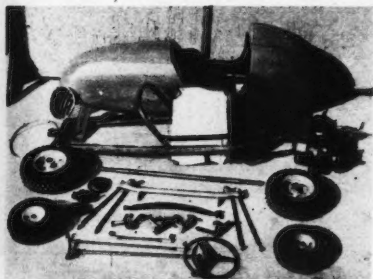
Anybody wishing information on these cars or rules and regulations for setting up a Quarter Roadster Association, write to QRA, 12257 Ball Road, Anaheim, California.

Photos by Roy Brock

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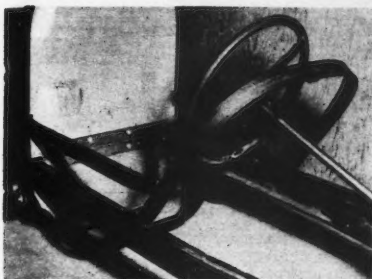


Five year old Danny Caruthers driving one of Viking's new 1/4 midgets, takes the lead over older brother Jim in a 1/4 roadster. Both have 9-inch engines, weigh under 150 lbs.



Kit has every needed part to make the car run. Buyer paints and chromes.

Engines used are two or three horse Continentals. Rear axle mounts in pillow blocks.



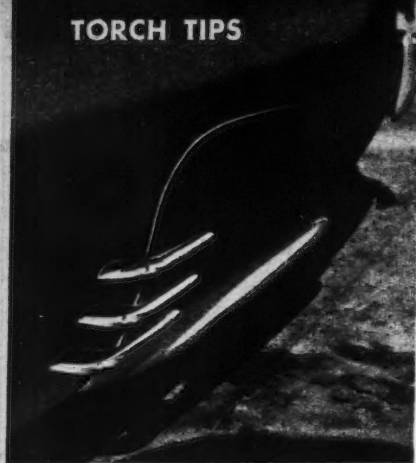
Frame is 2-inch channel and cockpit is protected by 1/4-inch steel strap roll bars.

All ready to go, car looks exactly like a real midget except for cooling fan intake.



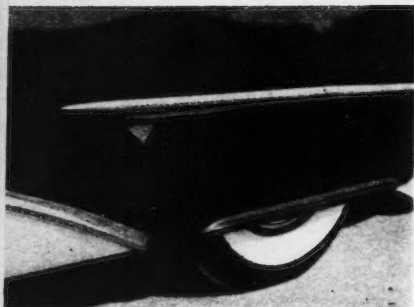
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TORCH TIPS

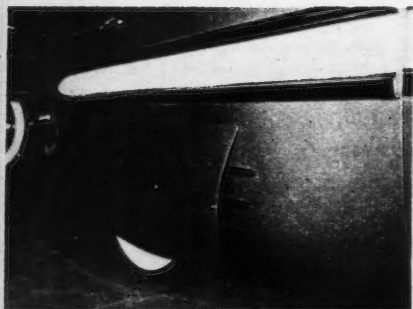


Rear Fender

IN THE July '55 issue of CAR CRAFT we had quite a splash on rear fender air scoops. If recent correspondence is any criterion as to the acceptance, then the article was well received by all. At the time we were making up the July air scoop feature, we got a rumble on a new customizing gimmick for air scoops that had great merit from the standpoint of low cost and simplicity. It was obvious that it would be only a question of time 'til this new item would catch on like crazy. We had



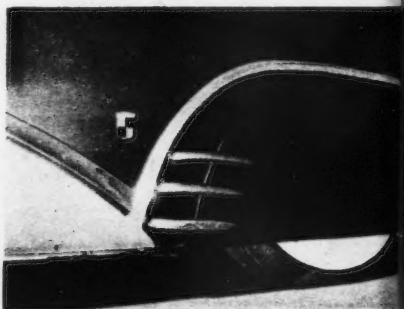
Unique styling is to cut back leading edge, install teeth and carry trim into scoop.



Special skirts can be made up to follow lower body roll. Trim is standard gimmick.



Another skirt styling example. Edge is cut back with trim protruding from scoop.



For early models, reshaped '41 Buick skirts work well. Chrome teeth are '53 Chevy.

Skirt - AIRSCOOPS

three photos on tap at the time, of cars with this timely aircoop treatment, but felt that it would make more of a prize package if the subject was treated separately, rather than to throw it in with the rear fender feature of July. We contacted the Barris Brothers Custom Shop for a how-to-do-it on the item, threw in four examples of what has been done to date with styling possibilities and there you have it — *the new rear fender skirt aircoop!*

The following step-by-step story showing you how to make these skirt scoops deals with only two components. The skirt itself is the universal type made in an assortment of shapes to fit all makes of cars. They are sold by all leading automotive accessory stores. The three chrome trim pieces used originate from the rear fender of a '53 Mercury. Possibly the story's greatest backyard potential is that the whole job can be done strictly with good ol' hand tools.

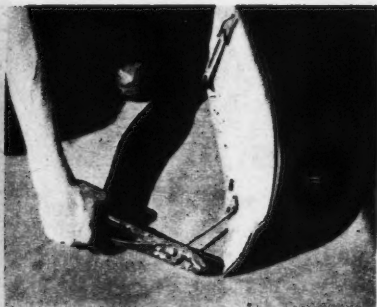
Photos by George Barris



Skirts used for story are the "Universal" type carried by leading accessory stores.



The three chrome teeth used for trim on the skirt emanates from fender of '53 Merc.



1. The first step is to bend the lower front attaching arm out from the skirt.



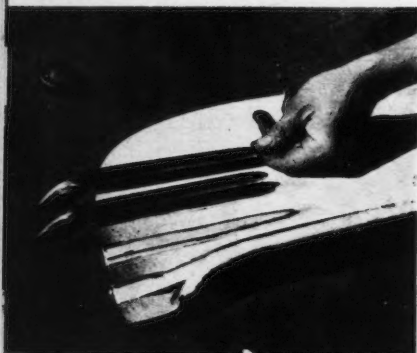
2. With a dolly and hammer, work front edge and flange of skirt into oval shape. ➡



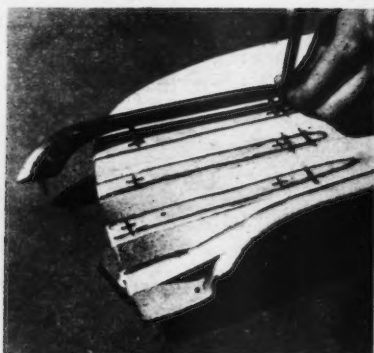
3. To obtain a point to measure from, tape equal line from skirt's lower flare.



4. After taping off measuring point, mark off the teeth positions with masking tape.

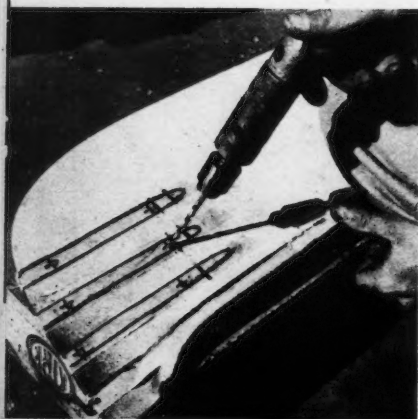


5. Lay out chrome teeth and stagger them equally to leading edge contour of skirt.



6. After aligning and marking off each trim piece, next, mark off the bolt holes.

7. First center punch bolt hole markings, then drill holes out with small hand drill.



8. Before installing chrome teeth, place them in vise and cut off the front bolt.





9. Place the end of one of the teeth on a rubber pad and trace off the end's contour.



10. Cut three rubber patches. Cement one on to forward end of each chrome piece.



11. The rubber patches prevent trim from scratching body. Now secure trim to skirt.



12. Bend skirt over your knee to align the skirt to the contours of the trim pieces.

13. Install skirt and check fit. Forward attaching arm may need adjustment.

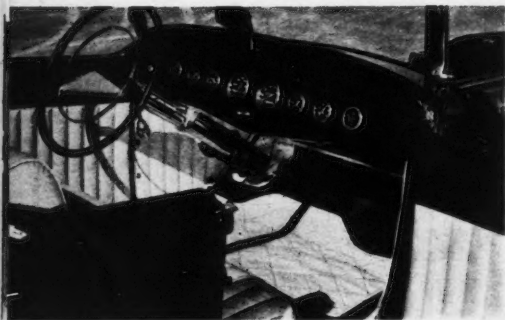
14. Here is skirt completed. Cost for a shop to make skirts is approximately \$20.



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Photos by Eric Rickman



Instrument panel has a full complement of Stewart Warner gauges. Steering wheel is '51 Ford. Upholstery, rugs by Carson.



... and go for a ride in a SUPER STREET ROADSTER

FOR a good many years, the '32 Ford roadster has been one of the top favorites for conversion into a prime hot rod. This popularity has been achieved through a combination of many features. The majority of these cars came from the factory with a V8 engine which meant that a later Ford engine could be installed without worrying about such items as cross members, radiator changes, engine mounts, etc. Then too, the '32 body had much more room than the earlier A's and T's which meant that the body could be channeled and otherwise altered while still retaining enough room for driver and passenger comfort.

Jerry Gershenberg of Woodland Hills, California, bought the roadster pictured on these pages two years ago and after adding to the original builder's ideas, has finally completed his "Deuce." The body has been channeled four inches. The rear deck lid was

discarded and sheet metal used to fill in the rear of the car as well as an extra roll under the rear of the car to give a smooth appearance. The windshield was chopped, door handles were removed and the '32 shell shortened and filled. After all of the body work was completed, Jerry had the car sprayed Tahitian red with 25 coats of lacquer paint.

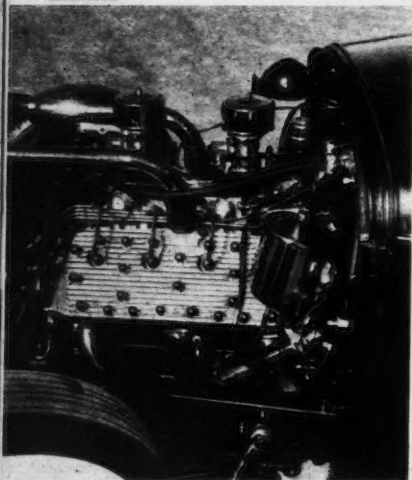
The engine is '42 Merc opened out to 274 cubic inches and fitted with big valves, Harman & Collins cam, 9.5:1 compression and all of the rest of the items that make an engine of this size push the chassis up to 95 MPH at the 1/4 mile drag strips.

The facts mam, are that this car not only has looks that win trophies in auto shows but has comfort which wins praise from passengers when they are lucky enough to get a ride in the plush cockpit upholstered by the Carson Top Company. ➡



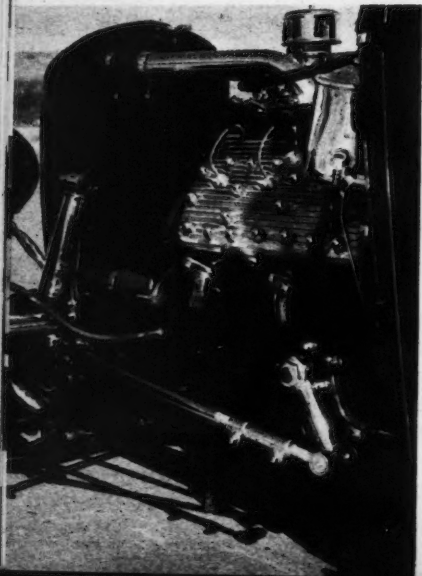
SUPER STREET ROADSTER

continued



Bored, stroked and balanced '42 Merc engine has 276 inches, is dependable on gas.

Radius rods are adjustable for caster. Steering is '34 Ford, shocks are Briggs.



Front and rear ends dropped and filled axle, anti-sway bar, tubular shocks, '41 Ford brakes. Grille bars are 1/4 inch drill rod.

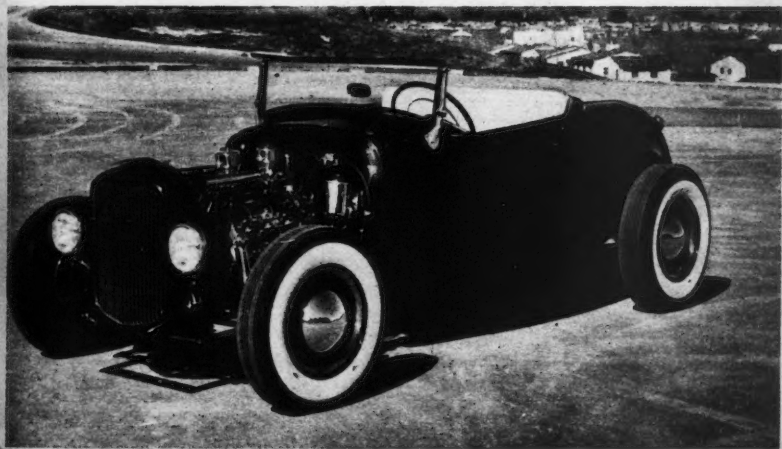


Sheet metal was used to fill deck, make roll under body. Taillights are Pontiac.





Clean lines of Gershenberg's street roadster include filled frame horns, door handles removed, rear wheel wells filled. Rear wheel rims were reversed to give better clearance.



GRAB BAG:



Gil Cudany utilized popular accessory straight bar to replace his stock grille. Accessory bar is contoured to park light.



Marc Lassalle used '52 Desoto grille bars for his '52 Ford. The eight bars lend a unique style encased in the molded '50 Merc grille shell. Park lights are '34 Ford.



Being that the '54 Ford's grille opening is similar in style to that of the '55 the grille from a '55 is easily adapted.

A different treatment indeed is this innovation of raising and intalling the stock bumper in place of the stock grille bar.

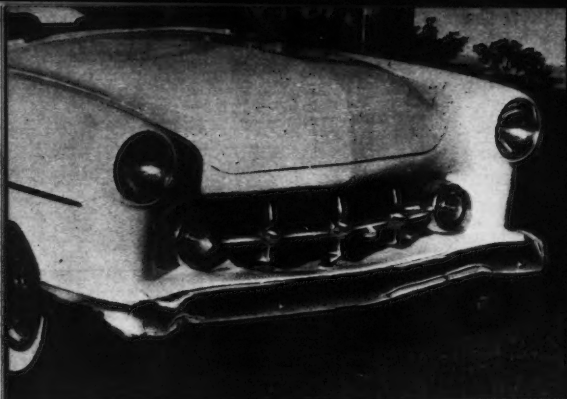
GRILLES

...for '52-'54 Fords

While rummaging through our good ol' Grab Bag file this month we were really surprised to find quite an array of cleverly customized grilles for '52-'54 Fords. In fact, we ran across enough of the front end goodies that a full four pages could be made up strictly in their honor. Since this issue is a little slight on this particular year and model, this will give you late Ford owners some meat for thought. The following grille shots cover just about every styling approach that has been made for Fords ranging within these years. You'll find everything from the simple bolt on accessory type grille bar to the latest work of the nation's top custom shops.

CONTINUED ➡

Photos by Rickman, Moore, D'Olive, Barris



A '49 Merc grille shell was molded to the front grille panels of Bob Casey's, '52 Ford, then a '53 Chevy grille assembly was shortened to fit into the new opening.

The old standby grille, '54 Pontiac center bar, can be used on '53 Fords with a

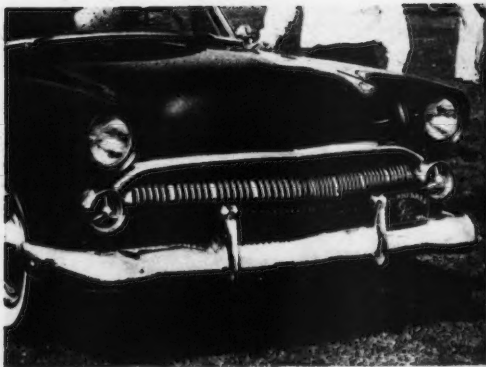
GRAB BAG:

continued

A clever arrangement is to utilize two straight bars. Bars of this type can be found on such cars as Kaiser, Studebaker, Hudson and some pickup trucks.



If the straight bar type grille isn't your choice, then here is a grille made up from two full '50 Merc grille assemblies. Extra bars were used to fill in center.



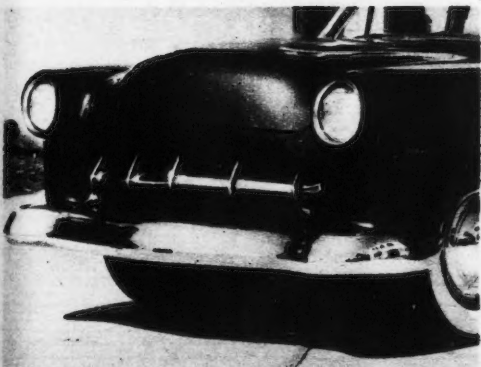


unique customized appearance. Warp around tips match Pont bar's contour.

Here's a complete switch for the '54 Ford. The center bar is from a '54 Pontiac, but the stock Ford's parking lights have been moved in to each end of the Pontiac bar.



One of the easiest approaches to restyling the '53 Ford grille is to install an accessory bar to the middle of stock grille bar. It lends the custom touch.

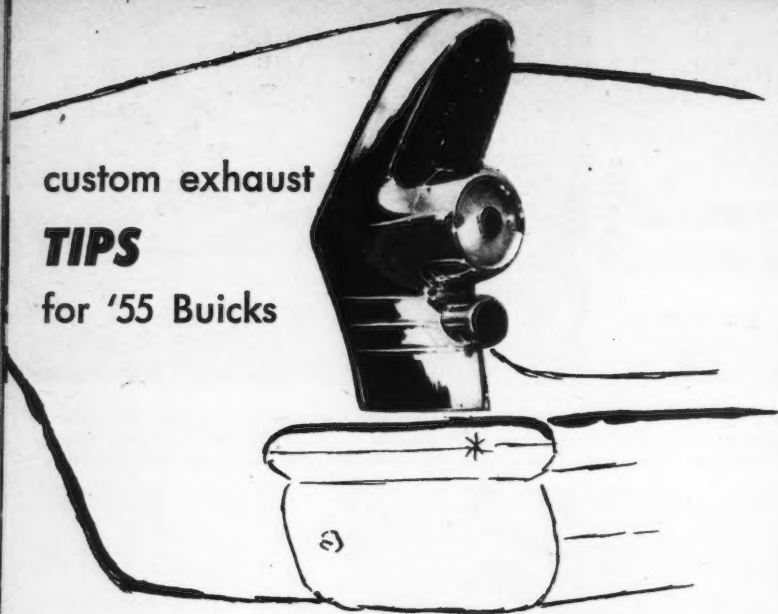


This '52 Ford's grille opening was formed with round tubing which was molded to front grille panels. Grille bar is from '54 Chevy with special parking lights.

custom exhaust

TIPS

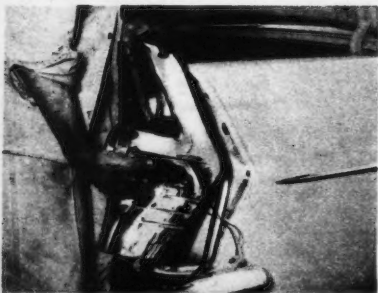
for '55 Buicks



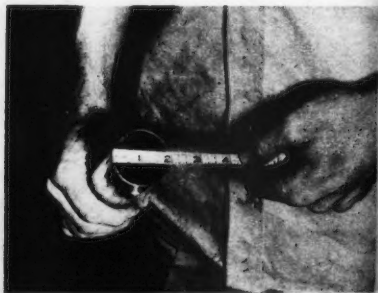
THE STANDARD style for exhaust tips these days is through the bumper. On some of the super deluxe Detroit productions this is stock equipment, but if you happen to own a less expensive model that doesn't offer this bumper-tip arrangement, then your local muffler shop or custom emporium can duplicate this simple treatment for a small charge. The popular approach in the past has been to merely drill two holes in the bumper the diameter of the tips, insert and

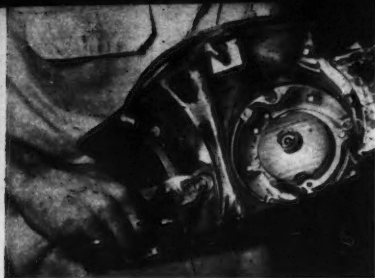
secure tips solidly, then re-route the exhaust pipes to the tips by utilizing flex-tubing or heavy rubber hose that will withstand heat such as that used for radiator purposes. Now that the tip fad is in full swing it's only natural that from here on out everybody will try to come up with a different arrangement than that of the next guy. On these two pages you find a typical example of what we mean and a clever innovation for the '55 Buicks.

1. First step is to remove the lenses from the housing, then outer chrome frame.



2. After determining the exhaust tips to be used, measure off its outside diameter.





3. Next, remove the reflector unit from inside the large outer chrome housing.

5. Side edges of hole are now hammered in slightly to fit around exhaust tip snugly.



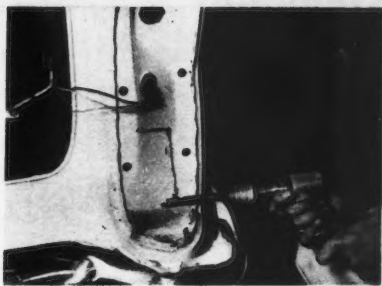
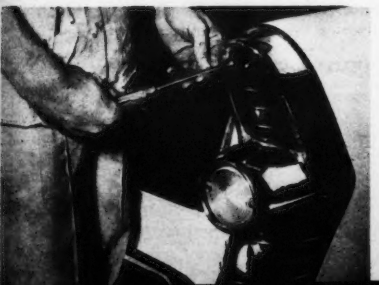
4. Reflector protrusion serves as guide. Use hole saw to remove round plug for tip.

6. A half-round machine file is used to fit protruding exhaust tip perfectly to hole.



7. With hole complete, reinstall outer frame. Mark inner fender for cutting.

9. The large outer chrome frame and the lenses can now be replaced and secured.



8. Where exhaust tips comes through fender, bulkhead is cut with air chisel.

10. Tip is now secured to exhaust pipe. An inner fender bracket will be necessary.



SAVE A BUCK by spending a minute

We've got a problem and you are the only ones who can help us. If you will answer the questions on the opposite page, we will have a better idea of just what type of stories you wish to see in future issues. We are in the business of selling magazines and it is quite obvious that if we can please most of the people most of the time, we will have a much more successful magazine and therefore, a better business.

We need to know a few things about you, the reader so that we can slant stories to fit your automobile and your own ability.

We would like to get an answer from everybody who reads the magazine so as an added incentive, we'll make a deal with you. Answer the questions and we will give you a \$1 discount on a year's subscription to Car Craft. If you are already a subscriber, we'll give you a buck off the renewal price when your current subscription runs out.

Regardless of whether you wish to subscribe or not, please send in the completed answer box and this will give us the dope we need to know in order to apply our efforts in the right direction. Thanking you in advance —

The Editors

CAR CRAFT MAGAZINE

5959 Hollywood Blvd.

Los Angeles 28, California

Enclosed is my \$2.00 for my special subscription to CAR CRAFT. I understand that the \$1.00 saving on these twelve issues is my reward for answering this questionnaire.

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QUESTIONS answer in box below

1. What is your age?
2. What is your occupation?
3. What is your monthly income?
4. Do you own a car? (Specify make and year)
5. Has your car been customized?
(A) Stock (B) Semi
(C) Radically
6. Has your engine been modified?
(A) Stock (B) Slightly
(C) Radically
7. Do you do your own customizing?
(A) None (B) Part (C) All
8. Do you do your own mechanical work? (A) None (B) Part (C) All
9. Have you followed one of our step-by-step features in (A) Customizing (B) Mechanical or engine work?
10. What type of How-To-Do-Its do you like? (A) Customizing (B) Engine modifications (C) Engine swaps (D) Chassis modifications
11. Which Car Craft department do you like best? Number in order of preference. (A) Style Report (B) Grab Bag (C) Bench Racin' (D) Torch Tips (E) What's Your Problem?
12. Do you like our continued stories which explain a particular phase thoroughly each month?
13. Do you like competition coverage such as track racing, drags, etc.?
14. Do you belong to a car club or national automobile organization?
15. Are you a subscriber to Car Craft?
16. Have you ever bought products from our magazine ads? If so, what?
17. What other magazines do you read?
18. What type of stories not featured would you like to see in Car Craft?

YOUR ANSWER HERE

1. _____ (your age)	10. A B C D
2. _____ (occupation)	11. 1st _____ 2nd _____ 3rd _____ 4th _____ 5th _____
3. _____ (income)	12. _____ (yes or no)
4. _____ (yes or no) (year & make)	13. _____ (yes or no)
5. A B C (circle one)	14. _____ (yes or no)
6. A B C	15. _____ (yes or no)
7. A B C	16. _____ What? _____ (yes or no)
8. A B C	17. _____ (other magazines)
9. A _____ B _____ (yes or no) (yes or no)	18. _____

When sending in your questionnaires, make sure that you address them to: CAR CRAFT MAGAZINE, c/o Questionnaire Department, 5959 Hollywood Blvd., Los Angeles 28, California.

"What's Your Problem?"

by Ray Brock

WE WERE MIXED UP IN THE HEAD

Dear Ray:

In May '55 Car Craft on Souping The '55 Ford & Merc, it was stated on page 13 that the difference between the optional 8.5 head on the 272 and the standard 7.6 head is only .035 inch. The caption with the picture on page 14 says the optional Merc and T-Bird 8.5:1 head is just .035 inch less than stock.

Since both the 272 and 292 engines use the B5A-6049-D heads to produce their respective standard ratio of 7.6:1 and 8.1:1 they obviously (unless I'm way out in left field) should give different ratios on the two engines after being milled .035 inch.

Sincerely,
Pete Larson
Provo, Utah

The caption is wrong, you are right. B5A-6049D heads give 7.6:1 with 272 inches, 8.1:1 with 292 inches and 8.5:1 with 311 inches. When milled .035, the ratio is 8.5:1 with 272 inches, 9.05:1 with 292 inches (limit for gas) and 9.6:1 with 311 inches (too much for gas).

HYDRAULIC CLUTCH

Dear Ray:

Just got through reading your article regarding the installation of a hydraulic clutch and swing pedals.

Not being overly sharp when it comes to modifying a situation to fit a particular problem, I would enjoy hearing your comments regarding the installation of a hydraulic clutch in a late model Ford having swing pedals such as mine.

Kurt Carlson
Chicago, Ill.

If you have your heart set on a hydraulic clutch, one can be installed but since the late Ford clutch throwout arm needs a pull from

the rear to release, the early Ford installation shown by Car Craft won't apply. The slave cylinder will have to be mounted in front of the throwout arm so that the cylinder stroke will push on the arm. Better yet, unless you have made an engine change that requires a hydraulic clutch, leave the mechanical linkage on the car. The stock Ford clutch linkage works very good and the hydraulic arrangement wouldn't be any improvement.

LATE V8 FOR CORVETTE

Dear Ray:

I'm purchasing a '53 Corvette and there are a few questions I'd like to ask.

I realize that a '55 Chevrolet V8 with power pack will fit, but will the changeover require much more than new engine mounts, heavier shocks, springs, etc.?

Also, will the '53 transmission take this boost in power?

Ken Beall
Palm Beach, Florida

You will have to change motor mounts but this should be simple. As for shocks and springs, the V8 is approximately 30 pounds lighter than the six so these shouldn't have to be changed. Your Powerglide unit will not fit the V8 unless some type adaptor is devised. The '53 unit shouldn't give too much trouble but as yet, we haven't seen an early Powerglide adapted to the new V8 so we can't give any tips.

OLDS-DYNAFLOW

Dear Ray:

I own a '53 88 Oldsmobile with a Dynaflo transmission which has given up four times in 28,000 miles. What changes would I have to make to install a Hydra-Matic transmission? That Dynaflo just won't take what that Olds can dish out.

Thank you,
Joseph C. Boudnaux
Opelousas, La.

This change should be fairly simple although possibly expensive. The cost will depend upon whether you can pick up a good used Hydra-Matic or have to buy a new one. We suggest a '52 or later unit and if your engine has been worked over, a '54 or later. If

used, the Hydra-Matic can be either Olds, Cad or Lincoln for maximum strength but the driveshaft length may have to be altered for use with a Cad box.

With the Olds Hydra-Matic bell housing, any of the units should bolt on and other needed pieces such as throttle linkage, etc., can be purchased at the local Olds parts department.

FOUR-BARREL CARBURETOR ON FLATHEAD

Dear Ray:

I have a 1953 Mercury with Merc-O-Matic transmission and am debating on the installation of a four-barrel carburetor and manifold. What increase on top speed, acceleration and performance would I get? How will it be for everyday driving?

Robert Patterson
Lake City, Florida

Since you have not stated otherwise, I am assuming that the rest of the engine will remain perfectly stock. With this setup, you can expect a nominal power increase at higher rpm's. With the automatic transmission however, chances are that you won't notice any big change except in mileage which will certainly suffer if you try to use the power increase on quick takeoffs.

MORE LIFT WITH STOCK CAM

Dear Ray:

I have a 1954 Oldsmobile that has Tim Timmerman head modifications with 1 15/16" intake valves, 1 9/16" exhaust valves and a compression ratio of 9:1.

Can I replace my stock 1954 camshaft with a 1955 model camshaft without having interference between valves and pistons? This quick change would lift valves .403 inch instead of .366 inch.

Thank you,
L. A. McCullough
Fulton, Mo.

Yes, you can get the increased lift, still use the hydraulic lifters and not worry about interference.

WHAT TO DO IN A CLUTCH

Dear Ray:

I'm putting a '41 Cadillac gearbox behind my Chrysler V8 engine and there is no provision for a clutch throw-out mechanism without using a Cad bell housing. I hesitate to do this due to the over-all length of engine-transmission combination which will result. To top it off, the Chrysler Powerflite required no throw out arm on the bell housing! What am I gonna do? I have considered bolting a piece of 3/8" steel plate to the block, then bolting the Cad bell housing onto that.

What do you think?

Terry Johnson
Knoxville, Tenn.

There is nothing wrong with the steel plate idea if it gives you the correct position between the transmission front shaft and the Chrysler flywheel. If this doesn't work, don't hesitate to cut a notch in the Chrysler bell housing for a clutch release arm. We have seen it done many times with good results.

HIGH GEAR RATIOS, ANYBODY?

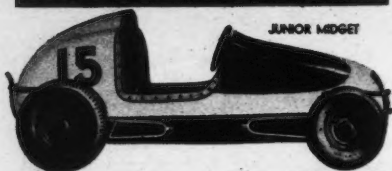
Dear Ray:

I have a '49 Ford convertible with a 3/4 cam, heads milled .050, cast iron headers and dual Mallory points. I have a 3.78 to 1 gear ratio with overdrive. I get pretty good acceleration but not good enough. I use it on the street only.

My problem is, what kind of manifold should I use? Would you suggest a two or three carburetor manifold? Should I use a 4.11 to 1 differential? I don't seem to have much on a hill with 3.78 in overdrive.

Yours truly,
John Freitas
San Francisco, Calif.

A dual carburetion setup should be ample for your engine. With stock bore and stroke, three would be too many for street use. The 3.78 rear end gears are too much for acceleration and when you use high overdrive, it's no wonder that your car can't pull a hill. Better use a 4:11 differential gear.



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BENCH RACING continued

not disturbed. In other words, if we raise the compression from 8 to 9 to 1, or 12½%, the maximum power and torque will be increased by about 12½%. Or, if we wish, we can decrease the overall fuel consumption by increasing the compression. This arises from the fact that leaner fuel/air mixtures can be used with the higher ratios to obtain a given combustion efficiency. With the leaner mixtures, however, the power and torque will be about the same as before the compression increase so we must decide beforehand upon which of the two advantages we wish to capitalize.

Before going wild with head milling, high dome pistons, etc., we must keep in mind that a flathead engine will not stand as high a compression ratio as a modern overhead valve engine, which suggests maximum ratio of about 8¼ to 1. If special aluminum heads are to be used, this can be increased by .5 ratios, due to the better heat absorption and radiation qualities of the aluminum. In any engine with a reground cam, the maximum ratio may also be increased by about .5, due to the valves being held open for longer periods.

Whatever the purpose behind increasing the compression ratio may be, moderation is the key word to keep from courting disaster by inviting detonation and any form of pre-ignition.

COMING NEXT MONTH:

HOW TO INSTALL HYDRAULIC BRAKES ON EARLY FORDS

PART II — BUILDING A FIBER-GLASS CAR

RESTYLING THE '55 FORD

NOV. CAR CRAFT

INTERNATIONAL MOTOR REVUE

— is on its way

MANY OF the country's most spectacular cars will be exhibited at the sixth annual International Motor Revue, to be held in the Pan Pacific Auditorium in Los Angeles October 14 through October 23.

Scores of the most outstanding custom automotive creations in the United States, as well as the finest hot rods, dragsters, competition cars, sport cars and novelty creations will be displayed. There will also be a motorcycle and an accessory division in the show.

The Motor Revue, which formerly was known as Motörama, is the largest and most successful presentation of its kind staged in the United States. It is endorsed by Car

Craft, Hot Rod, Rod & Custom, Motor Trend and Motor Life magazines, leaders in the automotive publishing world.

Numerous new features will be included in this year's show, according to producer Robert E. Petersen. These will be detailed in the next issue of Car Craft magazine.

For information concerning the exhibit of a vehicle in the show or regarding the rental of commercial space, please communicate with Lee O. Ryan, managing director, at 5959 Hollywood Blvd., Los Angeles 28, or telephone HOLLYWOOD 2-3261.

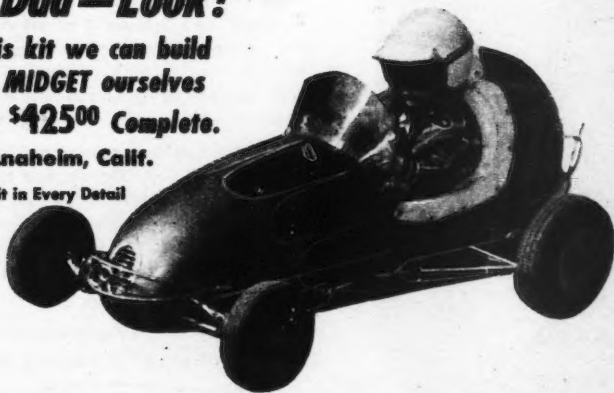
During the last 5 years this exposition has attracted over 600,000 spectators. Another 150,000 are anticipated at the 1955 showing.

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Occupying the entire floor area of the huge Pan Pacific Auditorium, this exposition will also feature a great display of the newest in parts, accessories and supplies in the speed and power fields as well as motorcycles and motorcycle accessories.

For information concerning the exhibit of cars, motorcycles or equipment or the rental of commercial space, please write to International Motor Revue, 5959 Hollywood Blvd., Los Angeles 28, Calif. or call Hollywood 2-3261.

**Lee O. Ryan, Managing Director
Robert E. Petersen, Producer**

A decorative banner with a torn edge effect, containing the text '10 GALA DAYS'.

10 GALA DAYS

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PLASTIC CARS

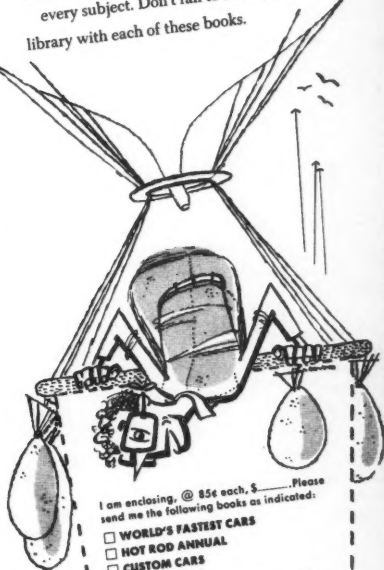
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Power Test	17pt. Self-Cleaning Plug	Standard Plug
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The above tests were conducted on an electric dynamometer at the rate of 1000 RPM. The test results showed that the 17pt. Self-Cleaning Spark Plug was superior to the standard plug in all respects.

1960 Ford Mustang

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Note that there are 16 apices (where two planes meet) - all the same distance from the center electrode. Normal heat and spark erosion are spread around the entire 360 degrees and around the whole circumference of the center electrode.

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